Young children's well-being

Domains and contexts of development from birth to age 8

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Published by NCB Research Centre - National Children's Bureau.
Registered Charity Number 258825.
8 Wakley Street, London EC1V 7QE. Tel: 020 7843 6000

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Executive summary

This review provides an overview of indicators used to research and measure the well-being of young children from birth to age 8. While there is no one agreed definition of well-being, experts generally agree that the term should be used to encompass the developmentally appropriate tasks, milestones and contexts throughout the life course that are known to influence current quality of life and happiness and pave the way for future health and success.

A specific focus on children's well-being has grown substantially over the past several decades due, in part, to advancements in data collection and analysis that have paved the way for the establishment of indicators as a way of measuring and monitoring well-being over time. Outcomes-based assessment, of which indicators are a key, is an increasingly important part of the UK policy landscape.

Indicators are a concise way of capturing information about various domains and contexts of children's development that can be used to:

- look at the overall state of children's well-being in England (and across the world)
- make comparisons between different subgroups of children (e.g., by age, gender, poverty status, etc.)
- monitor change over time.

Children's development occurs *across* many separate but interlinked domains encompassing primary aspects of well-being. Further, children's development occurs *within* many important contexts or environments that greatly influence their well-being. This review attempts to provide more information on these various domains and contexts of young children's development to offer a fuller picture of well-being.

The key *domains* of young children's well-being reviewed are:

- physical well-being
- mental health, emotional and social well-being
- cognitive and language development and school performance
- beliefs.

The key *contexts* of young children's well-being reviewed are:

- family economic status and resources
- caregiving and the home environment
- features of the community and neighbourhood.

Findings and key messages for each domain and context are summarised below.

Physical well-being

Physical well-being highlights children's physical growth and development, their health and their lifestyles. Unlike the other domains, children's experiences and circumstances before they are born and during infancy

inputs into children's later well-being. Physical health and well-being is perhaps most frequently studied – particularly in international comparisons – for this young age group.

- Key *physical health* measures include infant and child mortality, breastfeeding, birth weight, hearing and vision, immunisation, dental health, developmental progress (gross and fine motor skills), child height and weight, chronic conditions and self-reported health.
- Key *healthy lifestyle and behaviour* measures include diet and nutrition, physical activity and exercise, safety behaviours, non-intentional accidents and injuries.
- Physical well-being indicators are generally assessed via formal records or survey data.
- A healthy birth weight, breastfeeding and immunisation cover provide strong health advantages to children and help to lower child mortality rates.
- The main cause of death for children (over the age of 1 year) in the UK is unintentional injury, rates of which are socially and demographically disproportionate.
- The presence of healthy behaviours in childhood can significantly reduce the risk of developing future health problems.
- Scant indicators exist on healthy lifestyle and behaviour for children below the age of 8 years, assessment of which is increasingly important due to rising rates of childhood obesity.
- The omission of indicators related to physical abuse, medication, disabilities, nutritional habits and special needs is highlighted.

Mental health, emotional and social well-being

Children's mental health, emotional and social well-being focuses on how children act, behave, feel, communicate their feelings and get along with others. The positive mental health, emotional and social well-being of young children has a profound impact upon their physical, cognitive and spiritual development. Large-scale studies tend to capture children's mental and emotional health using parent- and teacher-report measures and observation. It is expensive and time consuming to capture this domain on aggregate for whole populations.

- Children begin developing emotions and initial strategies for regulating their emotions in the first year of life; measurement therefore starts with babies' temperament and initial displays of emotion.
- Accurately assessing children's internal states is quite difficult; most assessments rely on observation of external behaviours.
- Behaviours are normally measured via caregiver-report and, for school-age children, teacher-report. Child self-report can also be used; however, they are not generally considered best practice until a child is about 11 years of age.
- Mental health and emotional well-being measures tend to focus on 'problem behaviour' whereas social well-being indicators tend to focus on children's positive traits and behaviours, such as empathy, sympathy and pro-social behaviour.

- Behavioural assessments usually comprise 'undercontrolled' or externalising behaviours (e.g., aggression) and 'overcontrolled' or internalising behaviours (e.g., depression).
- Large national studies have found some continuity in problem behaviour over time.

Cognitive and language development and school performance

Cognitive and language development is one of the most important aspects of children's well-being – at least from policymakers' perspectives. Children's cognitive development shows a great deal of continuity over time and their early performance is a strong indicator of later performance. Cognitive indicators range from standardised test or assessment scores, which enable comparisons across large groups of children, to more detailed observations and assessments used in many research studies.

- There are many standardised assessments – administered by trained examiners – of children's cognitive development applicable to children from 1 year of age.
- Key cognitive measures include verbal and vocabulary, literacy and numeracy, intelligence, general knowledge, problem solving, educational achievement, school engagement and participation.
- Cognitive and language development measures tend to focus on the identification of positive skills and competences.
- Measures of language development usually comprise assessments of receptive language (i.e., what children understand) and productive language (i.e., what children say and how they say it).
- Early language development is key to facilitating better learning, and differences in development tend to stay stable over time.
- Cognition of school-aged children is widely measured using achievement tests and also by teacher-report of children's achievement. Less attention is paid to measuring enjoyment, engagement and motivation even though these aspects of well-being are believed to be quite important.

Beliefs

Evidence for young children's beliefs about themselves and their capabilities is rather scant, given that many assessments of children's self-concept, self-esteem, self-efficacy and the like are only reliable for older children. This domain becomes increasingly important as children enter middle childhood and adolescence.

- Self-concept, self-esteem, self-efficacy, competence and related constructs focus on children's beliefs about themselves and their ability to influence desired outcomes.
- Self-concept is most relevant for young children as it focuses rather simply on who children think they are.
- By 4 years of age, children are able to discuss themselves in very simple terms.

- Measures of self-concept for young children are administered by an examiner and use pictures to gauge children's beliefs about themselves (i.e., do children identify with the person in the picture?).
- Children have global self-concepts as well as domain-specific self-concepts.
- Self-efficacy – children's beliefs regarding whether they can achieve what they set out to do – become very important in middle and late childhood.
- More research is needed to create consistent and reliable assessments of children's beliefs about themselves that can be used across studies.

Family economic status and resources

Families' economic status is one of the most frequently studied contexts of child development. Growing up in poverty affects children's development from birth and has lasting impacts throughout the life course. Most studies examining children's well-being account for their economic backgrounds.

- Family economic status and resources focuses on families' ability to afford basic necessities and remain free from financial stress.
- Income poverty is the most common assessment of families' economic well-being.
- In England, a relative poverty measure is used to assess poverty status, where poverty is determined based on how far below the national median income families must live.
- Socio-economic indicators such as family structure (notably whether family is headed by a lone parent), parent educational attainment, employment status; occupational status, mother age at first birth, number of children in household and receipt of benefits are highly correlated with family poverty.
- Increasingly, assessment of family economic status takes into account families' experiences of deprivation, not just their income.
- Family income and poverty is fairly volatile across childhood. Even so, reports of income can be quite inaccurate, and 'formal' assessments of families' economic status (e.g., income poverty) and 'informal' assessments (e.g., perceived deprivation) often do not align.
- Growing up in poverty is one of the strongest and most persistent unfavourable predictors of children's well-being.

Caregiving and the home environment

The family and home environment is where young children spend most of their time, therefore any review of young children's development needs to take into account the relationships, interactions and experiences they have at home.

- Assessments of the caregiver and home environment range from socio-demographic indicators such as family structure and mother age at first birth to observations of parent-child relationships or housing quality.
- The impact of parents' behaviour on children's well-being begins prior to birth via mothers' actions and lifestyle during pregnancy.

- Once children are born, parent-child relationships are assessed against the quality of their attachment.
- Early attachment behaviour often paves the way for later parenting behaviour including sensitivity, warmth, responsiveness, stimulation, intrusiveness, harshness and detachment.
- Parenting behaviour and parent-child relations are often best captured via observation in natural settings.
- One of the strongest influences on children's early well-being is the home learning environment, which focuses on parents' provision of learning opportunities in the home including both learning materials and their encouragement of children's learning behaviour.
- The home environment is generally examined via parent-report and observation.
- Housing conditions including crowding, presence of damp or mould and air quality also affect children's well-being.
- Parent-child relationships are powerful pathways between poverty and child development. That is, poverty is strongly linked to parental stress and mental health, which affects parenting quality, which in turn affects children's well-being.
- Although children are influenced by a multitude of contexts, their experiences at home are often quite important.

Features of the community and neighbourhood

Although more distal than the family and home environment, the neighbourhoods and communities in which children grow up influence their well-being. Until the 1980's this key context was largely left out of the child development literature.

- Assessment of the neighbourhood context includes structural characteristics such as level of deprivation in a given region, as well as subjective neighbourhood features such as residents' perceptions of trust, cohesion and safety and the quality and quantity of community resources.
- Neighbourhood structural characteristics are generally measured by Census data, benefit and tax records, hospital admissions, educational data, crime records and the like.
- Studies – mostly from the US – have demonstrated links between neighbourhood structural characteristics and children's well-being, above and beyond the influence of family economic status.
- Neighbourhood subjective features are usually assessed from resident-report surveys, observation or qualitative data.
- Research examining links between neighbourhood subjective features and young children's well-being are scant; however, the degree of mutual trust and solidarity among neighbours and their willingness to work together for the common good – so called 'collective efficacy' – appears to be a powerful neighbourhood process affecting families' well-being.
- Community resources affecting children's well-being include early years settings, schools and public play spaces. Assessments of the quality of these settings are usually linked with children's outcomes.

- Childcare quality includes both structural components such as staff qualifications or ratios as well as process quality, which highlights the relationships between providers and children.
- Research suggests that high quantity of non-maternal care in the early years may be deleterious for children's well-being, but that high quality care is generally beneficial.
- School quality including teacher characteristics and what occurs in the classroom affect children's well-being.
- Observation methods have revealed that the quality of teaching pedagogy, the level of organisation in classrooms and teachers' positive attitude all affect children's well-being.
- Extended schools are gaining increasing attention, but more research is needed vis-à-vis assessing the quality of these programmes.
- Play has massive benefits for children's well-being.
- Public play spaces need to foster risk-taking, incorporate natural settings and provide freedom from danger.

Conclusion

According to our review of the extant research, the following are the key priorities in assessing the domains of young children's well-being:

- *comprehensive:* cover broad domains and contexts of development for all age groups
- *reliable:* yield valid and reliable measurement across different subgroups and localities
- *positive:* encompass positive indicators in addition to negative indicators
- *regular:* measure change over time.

Regarding the above, many of the references cited in this report demonstrate that experts and professionals are aware of the holistic and comprehensive nature of young children's well-being. Data collected also need to represent this comprehensive viewpoint. To accurately assess well-being across a given area or region or even nationally requires robust and representative samples of children. It may be that investigators and funders need to give further thought to the uses of their data in the design phase to ensure that children's well-being can be comprehensively assessed, especially as measuring and monitoring children's well-being is increasingly important as a result of accountability-based public policy.

Several experts are calling for alternate assessments of well-being (all focused on positive features) including children's civic engagement, happiness and optimism. To enable measurement of these potentially important domains of well-being, further study is needed of how to reliably capture children's own perceptions and experiences on some of these more abstract notions. If valid measures were developed, this would enable policymakers to track positive aspects of children's well-being as well as some of the more traditional negative indicators.

Finally, as stressed throughout the report, children's development does not occur in a vacuum. It is crucial that the contexts and environments in which children grow up are accounted for – or are even the focus of – reports on children's well-being.

1. Introduction

Early childhood, defined as birth to age 8, is a time of rapid development and change. Although development is mutable throughout the life course, early childhood is a time when many of the foundations for subsequent development are built. Indeed, by the time children begin formal schooling significant differences and disparities are already apparent in their actions, aptitudes and behaviour (Shonkoff and Phillips 2000).

Children's development occurs across many separate but interlinked domains including physical health and development; mental and emotional health; social development; cognitive development and achievement; and children's beliefs and attitudes about their capabilities. Experts have long realised that a comprehensive view of child development takes into account each of the domains individually and in relationship to one another. Since the days of Bronfenbrenner (1979), children's development is frequently examined within context, acknowledging that children develop within and as part of different ecological settings including families, nurseries or schools and the larger communities in which they live. Development across various domains is a function of these important bi-directional interactions between children, other people and their physical environments.

What is well-being and how is it used?

Well-being is a multidimensional construct that incorporates this holistic and dynamic view of child development, and concentrates on the aspects of children's lives, competencies and experiences that are needed to promote their health and happiness in the future. In recent years, the term 'well-being' has shown up almost everywhere – even outside of child and life course development – and is sometimes viewed as a catchall phrase with little coherent meaning (Ereaut, Whiting, and Linguistic Landscapes 2008). While there is no one agreed definition of well-being, experts generally agree that the term should be used to encompass the developmentally appropriate tasks, milestones and contexts throughout the life course that are known to influence current quality of life and happiness and pave the way for future health and success – so called 'well-becoming'.

Implicit in this definition is the positive focus of well-being and the need to identify children's strengths. This is a departure from the past (in developed countries, at least), where well-being was often examined via biomedical markers – often negative in focus – such as infant mortality and growth trajectories (e.g., stunting and wasting). Today's indicators still incorporate these biological constructs as they underlie proper development, but reflect (at least in theory) that quality of life goes beyond survival and that the absence of negative factors in children's lives is a necessary, but insufficient condition for well-being (Ben-Arieh 2008a). Also important to the concept of well-being is the idea that while the key domains and contexts of well-being are fairly consistent across the life course (e.g., good physical health), many of the specific indicators vary as children grow. That is, the indicators must develop in line with children's own development.

The specific focus on children's well-being has grown substantially over the past several decades due, in part, to advancements in data collection and analysis that have paved the way for the establishment of indicators as a way of measuring and monitoring well-being over time. Indicators are a concise way of capturing information about various domains and contexts of children's development that can be used to:

- look at the overall state of children's well-being in England (and across the world)
- make comparisons between different subgroups of children (e.g., by age, gender, poverty status, etc.)
- monitor change over time.

Increasingly, indicators are used in public policy as a way of promoting certain standards, monitoring progress towards these standards and analysing strengths and weaknesses in different programmes to meet these standards (Ben-Arieh 2008b; Bradshaw and Mayhew 2005; Moore and Theokas 2008).

The usefulness of well-being indicators as a policy tool is a function of the quality of measurement. As summarised by Moore and Theokas (2008), and reiterating some of the points made above, high-quality, practical indicators should:

- cover broad domains and contexts of development
- encompass positive indicators in addition to negative indicators
- yield valid and reliable measurement across different subgroups
- measure change over time
- reflect both current well-being and future 'well-becoming'
- be available from high-quality and current datasets.

Increasingly, experts are also calling for children's voices to play a larger role in indicator development (Ben-Arieh 2008a). Although this is somewhat difficult when assessing younger children (i.e., most experts would argue that they are not accurate self-reporters), it certainly becomes important in middle childhood – about the time that children commence formal schooling. Part of this is recognition that childhood – including the early years – is a crucial segment of the life course in its own right and that we must consider what aspects of children's development are important in the present rather than always keeping our eye on the future. Further, while we have made the point that well-being needs to have a multi-domain and multi-context focus, experts also believe that greater attention needs to be given to less traditional (and often difficult to measure) constructs such as pro-social behaviour, positive attitudes towards learning and self-esteem, particularly for older children and young people (Brown and Moore 2009).

Indicators of children's well-being have become increasingly popular in the past decade. These indicators are often used in policymaking, for analysing the effectiveness of various polices and marking the early identification of risk. England has recently rolled out a new set of indicators for young children, which we describe below.

This review attempts to provide more information on the various domains and contexts of development for young children – beginning at birth

through 8 years of age – to offer a fuller picture of children's health and well-being in context. We will demonstrate that in many cases assessing well-being holistically and comprehensively requires quite lengthy surveys and observation systems. The review is structured into two main sections: one focusing on the primary domains of young children's well-being, and the second on the contextual factors that influence children's well-being.

Brief methodology of the research review

This research review is not a full systematic review, but is a thorough overview of the research on young children's well-being and related concepts over the past decade, particularly the past 5 years.

Focusing on 'well-being' and 'children' as keywords, we conducted detailed searches of several databases from 2003-2008 including:

- NCB library
- PsycInfo
- ERIC
- Social Work Abstracts
- International Bibliography of the Social Sciences
- Social Science Full Text

Many of the sources covered multiple domains or contexts of well-being and many were review articles/chapters rather than original empirical research. In all, our focused well-being searches elucidated more than 2,000 sources. After removing duplicates, resources not related to young children and those not of relevance, we retrieved approximately 200. We also conducted online searches and monitored key websites for recent publications, for which we obtained a further 50 articles and reports.

For certain domains and contexts of well-being, we conducted individual searches because these topics were not sufficiently detailed in the general well-being sources. We also relied on our own knowledge and expertise on the topic and relevant resources (particularly on the contextual influences on young children's well-being) as necessary. The majority of the evidence cited in the context sections was retrieved from these individual searches.

As much as possible, we focus on findings from British data sources. This research is bolstered by findings from the US, Canada and other countries. Although the policy environments of other countries are not identical to England, many of the concepts and measures used in non-British research are comparable.

We completed short summaries of the texts to help us organise the material into a meaningful review outline and entered all citations into an Endnote database.

The remainder of this report reviews the evidence on young children's well-being, focusing in particular on how well-being is measured. We describe each developmental domain broadly and then specify the different sub-domains within each. We detail how the various sub-domains are commonly measured and highlight areas where further measurement work is needed. We describe how the various domains of development become more or less

relevant with age and how early development provides a foundation (but does not entirely determine) later development.

After focusing specifically on the domains of development, our discussion turns to the key contexts in which the growth and development of well-being occurs. We focus on three contexts, notably family economic resources; parenting and the home environment; and neighbourhood and community characteristics. In these sections, we detail how children's development is influenced by their environments and try to highlight some of the key risk and protective factors in children's lives. Much of the robust research on child development focus on children in context and it will become clear that it is very difficult to examine children's health and well-being in a contextual vacuum.

2. Key domains of young children's well-being

The following sections review the key domains of young children's well-being:

- physical well-being
- mental health, emotional and social well-being
- cognitive and language development and school performance
- beliefs.

Physical well-being highlights children's physical growth and development, their health and their lifestyles. Unlike the other domains, children's experiences and circumstances before they are born and very early during infancy inputs into children's later well-being. Physical health and well-being is perhaps more frequently studied – particularly in international comparisons – than the other domains.

Mental health, emotional and social well-being starts with babies' temperament and initial displays of emotion. Often difficult to capture on aggregate for whole populations, much of our review examines how large-scale studies have captured children's mental and emotional health using parent- and teacher-report measures and observation. Many of the common assessments used focus on 'problem behaviour' rather than children's positive traits and behaviours.

Cognitive and language development is one of the most important aspects of children's well-being. Regardless if we agree that a focus on achievement is ideal in early childhood, children's cognitive development shows a great deal of continuity over time and their early performance is a strong indicator of later performance. Cognitive indicators range from standardised test or assessment scores, which enable comparisons across large groups of children, to more detailed observations and assessments used in many research studies.

The final domain we investigate is children's beliefs about themselves and their capabilities. The evidence is rather scant for young children given that many assessments of children's self-concept, self-esteem, self-efficacy and the like are only reliable for older children. In any case, we review in brief some of the main concepts as this domain becomes increasingly important as children enter middle childhood and adolescence.

Each section begins with a brief description of the domain followed by an overview of some of the key components of the domain and common measures used to assess children's growth and development in the domain. We also briefly review evidence outlining why each of the four domains is important to children's overall well-being. These sections do not focus on specific populations of children.

Physical well-being

Physical well-being relates to measures of health including:

- birth and death records
- physical examinations
- measurement of physical attributes such as height and weight
- assessment of exercise and activity
- recorded nutritional intake
- self-reported health.

Good physical health is of key importance for young children as it not only impacts upon healthy growth and development and contributes towards social and psychological well-being, but also influences their health outcomes in later life. Furthermore, unhealthy behaviour that is developed and entrenched in early childhood can be difficult to alter later on.

Physical health indicators can broadly be divided into two categories: (1) indicators that measure physical health and ill health, and (2) indicators that measure healthy lifestyle and behaviour. Measures of the former commonly comprise:

- infant and child mortality
- birth weight
- breastfeeding prevalence and duration
- hearing and vision
- immunisation
- developmental progress (fine and gross motor skills)
- child height and weight
- dental health
- chronic conditions (e.g., asthma)
- self-reported health.

The latter includes:

- diet and nutrition (including breastfeeding)
- physical activity and exercise
- safety behaviours (e.g., wearing a cycle helmet or seatbelt)
- unintentional accidents and injuries.

For older children, this list would also include sexual activity and sexual health, and substance use and abuse.

Measurement of children's physical health and health behaviours

In the sections below, we review some of the common physical health and health behaviours indicators and ways of assessing the information. Clearly, some of the more cut and dry indicators such as births and deaths are collected by local registrars and we do not focus in any great depth on those indicators here. We highlight how different studies have operationalised physical health and describe some of the key measures used.

Throughout this section and the report, we try to use examples from recent UK studies that have large samples of young children and comprehensive measurement of their growth and development. We make frequent mention of the Millennium Cohort Study (MCS), which has reported on the first three sweeps of data collection when children were 9 months, 3 years and 5 years

of age, respectively. We also mention the Avon Longitudinal Study of Parents and Children (ALSPAC), the Children of the 90s study, which has collected a wealth of data over time on a cohort of children born in 1991. The Effective Pre-School and Primary Education (3-11) Project (EPPE, formerly the Effective Provision of Pre-School Education Project), which focused on children's development within preschool, primary school and home environments, is also highlighted in this report. Other international studies are summarised as well.

Physical health

Many of the key indicators of children's physical health focus on their development and experiences from infancy. For example, in the first sweep of the MCS when children were 9 months of age, parent interviews explored:

- birth weight
- immunisations
- hearing tests
- health problems
- accidents and injuries
- hospital admissions
- exposure to tobacco smoking
- breastfeeding
- child development
- child functioning
- developmental milestones.

Many of the same indicators were also included during the second and third sweeps.

Birth weight is one of the most common and earliest indicators of an infant's physical health. Low birth weight, defined by the World Health Organisation (WHO) as less than 2,500g, is linked to higher instances of motor and social developmental problems and an increased risk of infant mortality (defined as the death of an infant before the age of one). Studies have revealed that low birth weight is risk factor that impacts children in the long-term such that low birth weight children are more likely to face learning disabilities, have lower achievement test scores, display problems with memory and language and be held back in school relative to their normal weight peers (see Fauth, Brady-Smith, and Brooks-Gunn 2003). It is also associated with health problems into adulthood (Hirsch and Spencer 2008).

Infant and child mortality are also key indicators used to measure the physical health of children at the national level. In the UK, infant mortality rates are produced annually by the Office of National Statistics (ONS), the Northern Ireland Statistics Research Agency (NISRA) and the Information and Statistics Division (ISD), and are categorised between birth and age 1 as:

- *perinatal*: stillbirths plus early neonatal deaths
- *early neonatal deaths*: deaths up to 6 completed days of life
- *late neonatal*: deaths at 7 to 27 completed days of life
- *post-neonatal:* deaths at 28 days and over but under 1 year
- *infant deaths:* deaths at ages under 1 year.

Child deaths are then normally categorised from ages 1 to 4, 5 to 9 and 10 to 14 years (Beresford, Sloper, and Bradshaw 2005). The main causes of death for infants are conditions related to premature birth, sudden infant death syndrome, infection and congenital malformation. For children over the age of 1 year, however, the primary causes of death are normally from external causes such as accident, injury or cancer. In fact, once a child reaches the age of 5 years, *unintentional injuries* are the biggest threat to their survival and in the UK they are the main cause of death in childhood. As a major cause of disabilities, injuries can also have lifelong consequences upon a child's well-being. In 2004, the leading causes of injury related death for children aged 1-9 years old were drowning, road traffic injuries and fire-related burns. Rates of death from falls and poisoning also increase as children grow older (World Health Organisation 2008).

While all children are at risk of injury in their day-to-day lives, injury rates are disproportionate in terms of children's age, gender, socio-economic group and ethnicity (Towner, Dowswell, Errington, Burkes, and Towner 2005). Boys are much more likely than girls to suffer injury-related deaths, and this gender gap increases with age. Globally, unintentional injury rates for boys aged 5 to 9 years are a third higher than for girls (World Health Organisation 2008). Further, within all countries child injury rates are highest for families with low incomes. In the UK, the number of children killed or seriously injured in road traffic accidents in 2005 was 3,472; 48% of these injuries were sustained by children in deprived areas (Department for Transport 2007).

Child injury and death may also be caused by violence against a child. Article 19 of the Convention of the Rights of the Child defines violence against children as: 'all forms of physical or mental violence, injury and abuse, neglect or negligent treatment, maltreatment or exploitation, including sexual abuse' (United Nations 1989).

Due to the nature of *intentional injuries* there is a lack of consistent data of incidences of violence against children. Only a small proportion of intentional injuries are reported and even then the true magnitude of the problem can be underestimated. Very young children lack the capacity to report, and many children are afraid to report for fear of reprisal (Pinheiro 2006).

Infant and child *immunisation rates* are frequently included in indices of physical health, particularly at country level. Immunisation of babies and young children provides strong health advantages to children in their communities (Beresford, Sloper, and Bradshaw 2005). The National Public Health Service (NPHS) holds records of immunisation rates for the UK.

The *UNICEF Report Card 7* (UNICEF 2007) includes many of these measures of early physical health in their comparative examination of child well-being across economically advanced nations. Many of the physical health-related measures used in the UNICEF index are relevant to young people; however, three country-level components that include children from birth to 8 years are:

1. *child health at birth*: infant mortality rate and low birth weight
2. *child immunisation rates* for children aged 12 to 23 months for measles, polio, diphtheria, pertussis and tetanus (DPT3)
3. *deaths or injuries* among young people aged 0 to 19 years caused by accidents, murder, suicide or violence.

Data for the UNICEF study were collated from a number of international organisations. OECD health data reported that the infant mortality rate in the UK stood at 5.3 per 1,000 live births in 2003, which is rather high compared to other European countries. Instances of low birth weight (less than 2,500g) were 7.6 per 1,000. In 2002, 91% of children aged 12 to 23 months received DPT3 immunisation and 91% received Pol3 for polio. The immunisation rate against measles was 80 percent from 2003. The average accidental and non-accidental deaths rate calculated from the latest 3 years of data available for children under the age of 19 was 8.4 per 100,000 (Bradshaw, Holelscher, and Richardson 2007).

While we discuss children's nutrition in greater detail in the following section, *breastfeeding* is an important early component of children's well-being. Ingestion of breast milk has many benefits for young children including improved digestion and absorption of nutrients, protection against food allergies and other problems such as asthma and lower susceptibility to infection and illness (Beresford, Sloper, and Bradshaw 2005). Most studies examining infant well-being and development include measures of incidence, prevalence and duration of breastfeeding. Based on WHO guidance, the Department of Health recommends exclusive breastfeeding for the first 6 months of an infants' life followed by a combined diet of breast milk with solid foods from 6 months (Department of Health 2003).

Measurable at child-level, *child functioning and developmental milestones* are also key indicators of young children's physical well-being. There are many well-validated instruments used in large studies to examine children's health, growth and motor development. We review some of the key domains of physical health captured by some of the more common instruments.

One of the most widely used assessments of children's motor development is the *Peabody Developmental Motor Scales* (PDMS-2) (Folio and Fewell 2002), which provides an in-depth assessment of gross and fine motor skills from birth to 5 years. *Gross motor skills* focus on the body's larger muscles, which develop first and include head movement, rolling, sitting up, crawling, standing and walking. *Fine motor skills* utilise smaller muscle groups and first appear in the form of grasping or gripping. This assessment considers a range of interrelated motor abilities composed of six subtests relevant for young children of different ages on:

1. *reflexes:* ability to automatically react to environmental events (birth to 11 months only)
2. *stationary*: ability to sustain control of body within its centre of gravity and retain equilibrium
3. *locomotion*: ability to move from one place to another, including crawling, walking, running, jumping forward and hopping

4. *object manipulation*: ability to manipulate balls, including catching, throwing, and kicking (12 months and older only)
5. *grasping*: ability to hold an object with one hand progressing to use of fingers on both hands
6. *visual-motor integration*: ability to perform complex eye-hand coordination tasks such as reaching and grasping for an object, building with blocks and copying designs.

Another commonly used tool is the *Denver Development Screening Test* (Frankenburg and Dodds 1967), as used in MCS, which also measures children's gross and fine motor skills. The MCS found that by 3 years, 99.6 percent of children could walk without difficulty and 96.5 percent could climb stairs like an adult, with one foot on each step (Hansen and Joshi 2007).

For slightly older children (those aged 4 to 12 years), the *Movement Assessment Battery for Children* (Movement ABC) (Henderson and Sugden 1992) assesses movement difficulties via a classroom checklist that examines:

- movement competence
- manual dexterity
- ball skills
- static and dynamic balance.

Research shows that physical skills and movement problems can determine a child's participation and social adjustment at school, barring clumsier or less coordinated children from full participation (Henderson and Sugden 1992)

General health and health-related quality of life instruments, such as the *Health Utilities Index* (Furlong, Feeny, Torrance, and Barr 2001), and the *Child Health Questionnaire* and *Infant Toddler Quality of Life Questionnaire* (Landgraf 1994; Landgraf, Abetz, and Ware 1996) tend to bring together a much more expansive list of constructs. Common areas covered that relate to physical health are:

- physical functioning
- motor and functional development
- bodily pain or discomfort
- symptoms
- chronic health problems
- general health including perceptions of general health
- reported changes in health
- stomach problems and skin problems
- limitations to day-to-day activities.

A range of resources offer in-depth details of general health instruments (Davis, Waters, Mackinnon, Reddihough, Graham, Mehmet-Radji, and Boyd 2006; Grange, Bekker, Noyes, and Langley 2007). As covered by the above, children's or caregivers' ratings of physical health is a widely used and valid way of gauging general health status (Beresford, Sloper, and Bradshaw 2005).

Early assessments of physical health have long ranging impacts. Certainly, children born low birth weight often face difficulties throughout childhood. Other aspects of physical health also have long-term impacts: data from the National Child Development Study (NCDS) found that early physical health at age 7 years – notably hearing levels and asthma – was linked to adults' health 43 years later (Elliott and Vaitilingham 2008).

Healthy lifestyles and behaviours

Physical well-being requires that children have a nutritionally-balanced diet and a healthy lifestyle. Healthy behaviours such as exercising regularly, eating a nourishing and balanced diet, preventive dental practice and enjoying sufficient sleep all impact dramatically on a child's physical outcomes. Such behaviour can also include action that indirectly impacts upon positive outcomes such as wearing a cycling helmet or seatbelt (Moore, Vandivere, Atienza, and Thiot 2008). The presence of these healthy behaviours is crucial to sound childhood development and can significantly reduce the risk of developing future health problems.

In terms of diet, *good nutrition* in childhood is crucial for ongoing development and, moreover, dietary habits established early in life have long-lasting implications on later health-related behaviour (Elliott and Vaitilingham 2008). Both nutritional excess and deficiency can cause long-term problems.

Diets lacking in energy and essential vitamins and minerals can impact on all areas of development, such as the failure to thrive, short stature, poor weight, and motor and cognitive problems. Fat is essential for infants under 2 years of age, but after that excessive fat contributes to obesity and other difficulties (Leavitt, Tonniges, and Rogers 2003). Along with monitoring weight, diet and nutrition is commonly measured by surveying the number of fruit and vegetable portions consumed each day, eating breakfast and the intake of sweets and fizzy drinks (Finch and Searle 2005). Indeed, access to energy-dense, high- calorie food is linked to obesity (Paxson, Donahue, Orleans, and Grisso 2006).

In order to assess children's *weight status* their body mass index (BMI) is calculated by dividing weight (in kilograms) by height squared (in meters). Among adults, a BMI between 25 and 29 inclusive is a marker of overweight, and a BMI of 30 or above is obese.

COMPUTING BODY MASS INDEX (BMI)

BMI = weight (kg) / height^2 (m^2)

or

BMI = weight (lb) * 4.88 / height^2 (ft^2)

For children, BMI can vary widely for different ages and therefore it can be both difficult and problematic to determine what cut-off constitutes overweight. In the MSC, the cut-offs used for overweight were 17.42 and 17.12 for boys and girls, respectively; and 19.30 for boys' and 19.17 for girls' obesity using criteria recommended by the International Obesity

Taskforce (Hansen and Joshi 2008). Children's height and weight also can be classified into percentiles relative to their agemates, which gives a comparative view of their size.

Using BMI measurements, the MCS found that 15 percent of 5-year-olds in England were overweight (but not obese) and 5 percent were obese. Furthermore, obesity levels were slightly higher for girls than boys (Hansen and Joshi 2008).

Being overweight is linked to stereotyping and teasing, which can adversely affect confidence, self esteem and social relationships (Finch and Searle 2005). Those who are overweight in childhood tend to remain as such into adulthood, which has serious implications for the likelihood of suffering from strokes, type-2 diabetes, bowel cancer, heart disease, liver disease, asthma, sleep disorders, orthopaedic complications, high blood pressure and mental health problems (Paxson, Donahue, Orleans, and Grisso 2006). Perhaps most seriously, obese children today are developing health problems that usually only afflict adults. As such, these children must cope with these illnesses for a much longer period of time than do adults and must deal with quite serious illnesses at very young ages (Paxson, Donahue, Orleans, and Grisso 2006).

Physical activity has a range of benefits for children's healthy growth and development including preventing excess weight gain and helping overweight children lose weight. It is recommended that children between the age of 5 to 15 years should participate in physical activity of moderate intensity (i.e., activity that makes a person warm or out of breath) for 1 hour a day, 5 days per week (Department of Health 2004; Finch and Searle 2005). Physical activity is frequently measured by self-report (Conner 2003). Instruments such as accelerometers and pedometers can also be used to measure activity levels. Physical activity has been linked to improved self-esteem, decreased anxiety and stress, along with cardio-respiratory endurance (Conner 2003).

Research from ALSPAC examining childhood determinants of children's physical activity in early adolescence found that active parents tended to have active children, suggesting that parents' modelling healthy behaviours is very important in the early years (Mattocks, Ness, Deere, Tilling, Leary, Blair, and Riddoch 2008). Similarly, parents' obesity was linked to the risk of childhood obesity among 7-year-olds in ALSPAC and the NCDS, which includes cohorts of children from the 1990s and the 1950s (Elliott and Vaitilingham 2008; Reilly, Armstrong, Dorosty, Emmett, Ness, Rogers, Steer, Sherriff, and ALSPAC Study Team 2005).

Another aspect of physical well-being, which is often left out of measurement systems, is young children's *dental health* (Federal Interagency Forum on Child and Family Statistics 2008; Government Social Research 2008; Hogan and Msall 2008; Tonniges and Leavitt 2003). The key assessment is usually a score of decayed, missing or filled teeth or recorded dental health from age 1. Poor dental health tends to be linked to areas of higher deprivation.

One set of national-level indicators that covers a holistic set of child physical health measures, including most of the measures reviewed here, for children from 1 week to 15 years of age is the *Child Health Indicators of Life and Development* (CHILD) project (Rigby, Kohler, Blair, and Metchler 2003). The aim of the project was to identify and recommend indicators specifically for the health of children. The parallel project, PERISTAT, also developed an indicator set for monitoring and describing perinatal health in Europe for infants aged less than 1 week. The indicators identified are illustrated in Tables 2.1 and 2.2 below. It should be noted that because these indicators are on a national-level they do not include measures of individual children's developmental milestones and child functioning.

Table 2.1. The 10 core PERISTAT indicators

Neonatal health
- foetal mortality rate
- neonatal mortality rate
- infant mortality rate
- birth weight distribution
- gestational age distribution

Maternal health
- maternal mortality rate

Population characteristics
- multiple birth rate
- distribution of maternal age
- distribution of parity

Health care services
- mode of delivery

Adapted from Table 4 in Zeitlin et al. (2003).

Table 2.2. Selection of key CHILD indicators related to health

Child Health Status, Well-being

Child mortality
- child mortality rates (between birth and 1 year, and between birth and 5 years)
- selected cause-specific mortality (i.e. infectious diseases, congenital malformations, cancers, unintentional injuries, suicide, assault and homicide, perinatal causes)

Child morbidity
- cancer (annual incidences)
- diabetes
- asthma
- infectious diseases
- dental morbidity

Injuries to children
- burns necessitating admission
- poisoning necessitating admission
- fracture of long bones

Health Detriments, Risk, and Protective Factors

Parental determinants
- breastfeeding (percentage of children exclusively breastfed when

newborn and at 6 months and percentage of children breastfed at 12 months)
- household environment tobacco

Child lifestyle determinants
- physical activity (percentage of children that undertake vigorous activity outside of school for at least 2 hours a week)

Other factors
- overweight and obesity (BMI)
- air pollution exposure (percentage of children living in localities with an annual mean concentration of >40 ppm of PM10 in the air

Health system quality
- immunisation coverage (percentage at 24 to 35 months)
- leukaemia 5-year survival rate

Adapted from Figure 2 in Rigby et al. (2003)

Assessments of children's lifestyle and behaviours are increasingly important. Notably, the tremendous rise in childhood obesity over the past two decades mandates the need for further understanding of the early determinants of overweight and obesity. Further, as children age it likely becomes harder to change their behaviour and habits, making early identification of poor nutrition and lack of physical activity important.

Conclusion

This section has reviewed the key domains of children's physical well-being drawing on measures of both physical health and healthy behaviours. The third sweep of the MCS found that in 2007 to 2008 the majority of children aged 5 in England are growing up healthy (i.e., 83 percent rated by caregiver to have 'excellent' or 'very good' health), but that there were still significant inequalities in children's health across different social, ethnic and income groups (Hansen and Joshi 2008). Moreover, differences were apparent between the health and development of boys and girls, with more boys than girls suffering from asthma and hearing problems by 5 years of age, and girls more likely to be obese at age 5 (Hansen and Joshi 2008).

Despite the numerous measures covering the domains of physical health and healthy behaviours, it is evident that there are gaps in both the tools that are used and the indicators available, and in some cases, extant indicators for young children under the age of 8 years. Many of the physical health indicators do not include substantial healthy behaviour and lifestyle indicators such as eating breakfast, daily fruit intake, physical activity, being overweight and self-reported health. Furthermore, several studies have highlighted the omission of several indicators relating to physical health that require further research including physical abuse, permanent or severe disabilities, nutritional habits, medication and special needs (Rigby, Kohler, Blair, and Metchler 2003). The *UNICEF Report Card 7* notes that gaps in measuring domains at country level, such as physical abuse, maltreatment and neglect, are due to lack of common definitions and inconsistencies between countries in terms of classification.

Section summary: Physical health

- Physical well-being indicators can broadly be divided into two categories (1) *physical health and ill-health* (2) *healthy lifestyle and behaviour.*
- Physical well-being indicators are generally assessed via formal records or survey data.
- Key physical health measures include infant and child mortality, non-intentional accidents and injuries, breastfeeding, birth weight, hearing and vision, immunisation, developmental progress (gross and fine motor skills), child height and weight, chronic conditions and self-reported health.
- Key healthy lifestyle and behaviour measures include diet and nutrition, physical activity and exercise, safety behaviours, dental health.
- A healthy birth weight, breastfeeding and immunisation cover provide strong health advantages to children and help to lower child mortality rates.
- The main cause of death for children (over the age of 1 year) in the UK is *unintentional injury.* Injury rates are socially and demographically disproportionate.
- The presence of healthy behaviours in childhood can significantly reduce the risk of developing future health problems.
- Scant indicators exist on healthy lifestyle and behaviour for children below the age of 8 years.

Mental health, emotional and social well-being

Children's mental health, emotional and social well-being focuses on how children act, behave, feel, communicate their feelings and get along with others. The positive mental health, emotional and social well-being of young children has a profound impact upon their physical, cognitive and spiritual development. Emotions help us to appraise experiences and prepare for action.

The earliest years of a child's life are important for making emotional connections, learning how to interact with others and building relationships that can impact upon their mental health in the future (Underdown 2007). Assessments of infants' temperament capture some of the earliest aspects of children's emotions focusing on their adaptability, ability to soothe themselves and engage with people. These early infant behaviours and later behaviours exhibited by children are usually assessed via caregiver-report assessments and behaviour checklists. Below we describe some of the key components of children's mental health and emotional and social well-being and describe measures used in many of key studies of the 1990s and 2000s.

Measurement of children's mental health, emotional and social well-being

The components of mental health, emotional and social well-being are made up of a mix of observable behaviours and internal states. Measures of

mental health and emotional well-being commonly tend to focus on the identification of problem behaviour, where as assessments of social well-being tend to focus on the recording of positive behaviours. For the purposes of the review, this section first focuses on children's mental health and emotional well-being and subsequently highlights indicators of children's social well-being.

Mental health and emotional well-being

Mental health and emotional well-being highlights children's ability to deal with their feelings and to respond appropriately to the feelings of other. Assessment of mental health and emotional well-being is often via observable characteristics such as behaviour, and focuses on identifying the presence or the absence of problematic behaviour. The very nature of this type of assessment is subjective; therefore the measurement of mental and emotional health can be difficult. Ideally, measurement should include multiple respondents (i.e., caregiver-, and teacher-reports) to maximise reliability.

Tools for assessing young children's mental health and emotional well-being include parent- and teacher-reports of children's behaviour, observation of parent-child or child-peer interactions, interviews with parents and teachers and clinical observation. Child self-reports can also be used, however, they are generally not considered best practice until children are about 11 years of age. Self-report tests must be age appropriate because objective completion requires the ability to read and understand test items and cognitive maturity to make appropriate judgements (Merrell 2003). Unlike cognitive skills, which tend to be stable across settings, emotions and behaviour are highly context dependent (Ripke, Huston, Eccles, and Templeton 2008).

Emotional development is very quick in the first 5 years of children's lives starting with the appearance of the 'core' set of emotions and initial strategies for regulating these emotions (via e.g., self-soothing) in the first year of life (Cole, Luby, and Sullivan 2008). Early infant mental health is most commonly measured through observation and maternal-report of *temperament*. Temperament focuses on how infants' behave, react and regulate their emotions. The first sweep of the MCS when infants were 9 months of age included caregiver-reported items from the *Carey Infant Temperament Scale* (Carey and McDevitt 1978), covering infants':

- *mood*: makes happy sounds, is pleasant, content and calm
- *adaptability to new situations*: is rarely or almost never wary of strangers, shy, fretful and bothered in new places
- *regularity*: wants milk, gets sleepy, wants solid food at about the same time and has naps of the same length.

Findings from the first wave did not reveal any major differences by children's gender or socio-economic status (Dex and Joshi 2004). Other features covered in temperament assessments include babies' activity, approach and withdrawal to people and objects, intensity, persistence, distractibility and sensory threshold (Cole, Martin, and Dennis 2004; Medoff-Cooper, Carey, and McDevitt 1993). Some assessments observe babies' reactions to various stimuli (e.g., toys, people). These observation

methods may be more robust than caregiver-report methods because of the inability of very young children to report on their emotional states (Cole, Martin, and Dennis 2004).

Infants' temperament is a precursor to (or an early version of) children's *emotion regulation*. Although frequently not included in measures of mental health and emotional well-being, emotion regulation is increasingly recognised as a key part of children's development. Emotion regulation is the ability to suppress a dominant (behavioural or emotional) response in favour of a subdominant response. Emotion regulation – sometimes referred to as self-control or behavioural regulation – accounts for how emotions facilitate or impede other psychological processes including attention, problem solving and relationships. It is a *self-regulatory mechanism* that underpins many aspects of development: cognitive, social, emotional, motor and behavioural (Cole, Martin, and Dennis 2004; Kochanska, Murray, and Harlan 2000).

Although it is difficult to measure directly, children's self-regulation is usually indirectly captured via observation of children completing activities requiring them to demonstrate motor control, cognitive control, delay of gratification and sustained attention (Graziano and Tobin 2003; McCabe and Brooks-Gunn 2007). Some examples of tasks commonly used to assess emotional control are outlined in Table 2.3 below. These tasks are normally administered by an experimenter and can be conducted in the school and home contexts. The tasks set out below can be conducted with children from 22 months of age.

Table 2.3. Examples of activities used to assess toddler and preschool children's self-control

Delay

- *snack delay*: the child, with hands on a mat on a table, waits for the experimenter to ring a bell before retrieving chocolates from under a transparent cup
- *wrapping gift*: the experimenter asks the child to sit with their back to them and not to peek while a gift is being wrapped

Slowing down motor activity

- *walk a line*: the child is asked to walk down a 1.8 metre tape glued to the floor to and from the mother as slowly as possible

Abridged from McCabe and Brooks-Gunn (2007) and Kochanska et al. (2000).

Although not covered in any detail here, there are some physiological measures of children's regulation including EEG (Graziano and Tobin 2003). Assessment of regulation is frequently based on caregiver-report. Few instruments explicitly measure emotional regulation; however the Strengths and Difficulties Questionnaire (SDQ) and the Early Development Instrument (EDI), both outlined below, capture some other important features including:

- good attention span
- easily distracted
- fidgeting
- squirming

- can sit still
- can await turn in games.

There are obviously some overlaps here with aspects of children's cognitive development – particularly their ability to pay attention and stay focused on task. Indeed, the domains of children's well-being are interconnected to some extent.

A study using the activities described in Table 2.3 above found continuity in children's self-regulation over time, such that 2-year-olds with good regulation generally maintained this level of regulation at 3 years of age (Kochanska, Aksan, Prisco, and Adams 2008). Further, children's regulation at 3 years predicted their ability to modulate feelings of anger and joy. Children's self-regulation and positive emotionality can both be linked to pro-social behaviour, which we discuss in the following section (Eisenberg 2003).

From 18 months onwards, mental health and emotional outcomes are frequently measured via *behaviour problem indices*. These typically focus on both 'internalising' (overcontrolled – e.g., withdrawal, depression) and 'externalising' (undercontrolled – e.g., aggression, hyperactivity) behaviour problems. Two of the most commonly used indices are the *Strengths and Difficulties Questionnaire* (SDQ) (Goodman 1997; Goodman, Meltzer, and Bailey 1998) and the *Child Behavior Checklist* (CBCL) (Achenbach and Rescorla 2000; Achenbach and Rescorla 2001).

A key difference between the two instruments is their size: with the CBCL containing 118 items and the SDQ 25 items. The CBCL is a caregiver-report with versions for very young children, aged 18 months to 5 years, and older children, aged 6 to 18 years. A Teacher Report Form (TRF) is available for 6- to 18-year-old children, and Youth Self Report (YSR) from 11 years of age. The CBCL and related assessments cover behaviours relating to the following scales, among others:

- anxiety/depression
- withdrawal/depression
- attention problems
- somatic complaints
- conduct problems.

The CBCL provides individual scale scores, total scores and internalising and externalising scores (by combining scores on individual scales).

Similarly, the SDQ also screens problem behaviour for 3- to 16-year-olds and is available for caregivers, parents and young people. The SDQ was used in the MCS and ALSPAC. The behavioural questionnaire consists of five sub-scales, three of which are relevant to the measurement of mental health and emotional well-being:

- *emotional symptoms*: headaches/sickness, worrying, unhappiness/tearfulness, nervousness/confidence, fears
- *conduct problems*: anger/temper, compliance, fighting/control issues, lying/cheating, stealing

- *hyperactivity/attention problems*: restlessness, fidgeting/squirming, distraction/concentration, thinks before acts, completes tasks/attention span.

Both the MCS and ALSPAC have reported some continuity in problem behaviour over time. Strong correlations were found between problem behaviour at ages 3 and 5 in MSC. Further, relationships between the cognitive measures and children's behaviour were also found (Hansen and Joshi 2008). Boys and children born low birth weight are most likely to have very high problem behaviour relative to girls and children born normal birth weight (Cullis and Hansen 2008). Findings from a nationally representative study of children's mental health in Great Britain found that nearly a third of children with a clinical-level emotional disorder were assessed as still having one 3 years later (Clements, Fletcher, and Parry-Langdon 2008).

There are numerous other indices that cover different aspects children's mental health and emotional well-being for children of various ages including:

- *Brief Infant and Toddler Social Emotional Assessment* (BITSEA) (Briggs-Gowan, Carter, Irwin, Wachtel, and Cicchetti 2004), which includes externalising, internalising and dysregulation scales for 1- to 3-year-olds
- *Preschool and Early Childhood Functional Assessment Scale* (PECFAS) (Hodges and Wong 1996), which assesses behavioural, emotional, psychological and psychiatric functioning, including a moods and emotions scale for 3- to 7-year-olds
- *Children's Depression Inventory* (CDI) (Kovacs 1992) is a brief child self-report composed of 27 items assessing cognitive, affective and behavioural signs of depression
- *Child Health Questionnaire* (CHQ) (Landgraf, Abetz, and Ware 1996) measures emotional and behavioural problems and happiness for children 5 years of age and older.

Measures of mental health and emotional well-being are also common in medicine where *Quality of Life* (QOL) and *Health-Related Quality of Life* (HRQOL) instruments are gaining significant interest (Davis et al. 2006).

In close, caregiver reports of behaviour problems are the most common indicator of children's mental and emotional health and are generally classified along two dimensions: externalising or under-controlled behaviours including aggression, fighting, and acting out, and internalising or over-controlled behaviours such as depression. This reliance on caregiver – often maternal – reports of behaviour problems is somewhat of a shortcoming in many large national studies as maternal mental health and other characteristics may influence how parents rate their children's behaviour. Higher instances of teacher-rated behaviour problems are needed to corroborate mothers' responses. Further, most of the measures described highlight children's problem behaviour. Development of assessments that highlight positive behaviours and feelings would be useful as well.

Social well-being

In order for children to get along with each other it is crucial that they develop basic social skills and competences. During early childhood, social competence can be assessed through examination of the basic social skills displayed during a child's play with peers including taking turns, sharing toys, showing empathy, initiating and maintaining interactions (Obradovic, Dulmen, Yates, Carlson, and Egeland 2006).

Although related to social skills, pro-social behaviour focuses explicitly on children's voluntary behaviour intended to benefit another. Empathy and sympathy are related constructs detailing the degree to which children can understand the feelings of others and feel sadness in reaction to another's pain (Eisenberg 2003). Pro-social behaviour increases from preschool age onwards, and is often higher for girls than boys (Eisenberg 2003). Similar to the measures used to assess children's mental health and emotional well-being, the key components of social well-being are frequently measured using caregiver- and teacher-report checklists. Measures of social well-being tend to focus on positive behaviours.

For children from birth to 18 years, a commonly used instrument for measuring social competence and well-being is the *Social Skills Rating System* (SSRS) (Gresham and Elliot 1990), which measures:

- communication
- cooperation
- assertion
- responsibility
- empathy
- engagement
- self-control.

The *Early Development Instrument* (EDI) (Janus and Offord 2000) includes a substantial list of pro-social behaviours against which to measure social development including:

- plays cooperatively
- gets along with peers
- follows rules
- instructions and directions
- respects the property of others
- demonstrates self-control
- self-confidence
- respect for others
- listens attentively
- accepts responsibility for actions
- is curious about the world
- works independently and neatly
- eager to try new things
- able to solve problems
- shows tolerance of others
- helps and comforts others
- invites bystanders to join in a game.

These behaviours are assessed by a teacher who has observed the child for 2 to 6 months. The SDQ and CBCL also contain sections on peer relationships and pro-social behaviour.

In the MSC, infants who had problems with communicative social gestures, such as smiling and waving goodbye at 9 months tended to have the most behaviour problems at 3 years (Hansen and Joshi 2007). Children's pro-social behaviour tends to become more consistent over time such that by school-age, there is considerable consistency from year-to-year in reports of pro-social behaviour and sympathy including donating to charity, helping others and doing extra tasks (Eisenberg 2003).

A recent analysis of the ALSPAC data found that 8- to 10-year-old children's peer relationships tended to fall into five types:

- positive, many friends
- positive, few friends
- positive, but fallout
- victims
- bully/victims.

Children in the latter two negative friendship groups tended to suffer from higher levels of depression, had lower self-esteem and were less likely to enjoy or achieve at school than children with positive peer relationships. Further, there was some continuity in children's well-being over time: children with negative peer relationships in middle childhood were more likely than other children to have had poor language, emotional and prosocial outcomes in preschool (Gutman and Brown 2008).

In close, children's effective social skills and displays of pro-social behaviour are an important aspect of their well-being. Children's social behaviour is linked to other domains of well-being and there is continuity in children's peer relations and social skills.

Conclusion

The review of indicators used to measure mental health, emotional and social well-being suggests a fairly common approach to assessment based on observable behaviours.

Section summary: Mental health, emotional and social well-being

- This domain focuses on how children act, behave, feel, communicate feelings and get along with others.
- Children begin developing emotions and initial strategies for regulating their emotions in the first year of life.

Mental health and emotional well-being

- Accurately assessing children's internal states is quite difficult; most assessments rely on observation of external behaviours.
- Behaviours are normally measured via caregiver-report and, for school-age children, teacher-report.
- Measures tend to focus on identifying *problem* behaviour.
- Behavioural assessments usually comprise 'undercontrolled' or

externalising behaviours (e.g., aggression) and 'overcontrolled' or internalising behaviours (e.g., depression).
- Large national studies have found some continuity in problem behaviour over time

Social well-being
- Social well-being includes empathy, sympathy and pro-social behaviour.
- Measures tend to focus on identifying *positive* behaviour.

Cognitive and language development and school performance

Cognition is the process by which we gain information. Cognitive development focuses on how children perceive, think and gain understanding of the world, and occurs through children's interactions with their environments and the people around them. Children's ability to communicate – via language development – is a key part of their cognitive development.

The cognitive domain of well-being for young children includes:
- verbal ability and vocabulary
- literacy and numeracy
- intelligence
- general knowledge
- problem solving
- educational achievement
- school engagement and participation.

The foundations of learning are constructed early in life and children's early cognitive and language development are strongly linked to later educational achievement and attainment (Siegler 2003). Although assessing children's cognitive development is crucial in its own right, one of the main goals of assessment in early childhood is to see how prepared young children for entry into formal schooling. This preparedness, often referred to as school readiness, captures both the developmental level at which children are ready to grasp new material, as well as the more finite accumulation of skills – mostly cognitive and linguistic – perceived to be needed to succeed in primary school (Halle, Reidy, Moorehouse, Zaslow, Walsh, Calkins, Margie, and Dent 2008; Janus and Offord 2000). While we focus only on the cognitive components in this section, school readiness involves several domains of children's well-being.

This section on cognitive development highlights some of the key measures used in the early years. We describe the key behaviours and skills assessed by these measures and briefly summarise some of the more recent empirical evidence documenting links between early cognitive and language development and later outcomes. There is some overlap between these measures and assessments of children's emotion regulation and self-control, described previously. By and large, measures of cognitive and language development tend to focus on the identification of positive skills and competences.

Measurement of children's cognitive and language development

Cognitive assessments take many forms, but most are standardised tests or activities administered (and rated) by trained examiners. As children enter formal schooling, standardised achievement tests, teacher-reported assessments and even child-reported assessments are also used to provide evidence of children's achievement and experiences in the classroom. Below we describe some common assessments used in the early years.

General cognitive development of infants and young children

The *Bayley Scales of Infant Development* (BSID) are one of the most widely used assessment batteries for infants and very young children (Bayley 1993) One of its three scales – the Mental Development Index (MDI) – focuses on cognitive development of 1- to 3-year-old children and is widely used to gauge young children's cognitive functioning as well as identify any early delays or disabilities. The BSID comprises a series of tests administered by experienced clinicians who observes the child's responses and behaviours. The MDI evaluates:

- sensory and perceptual acuities, discriminations and response
- acquisition of object constancy
- memory learning and problem solving
- vocalization and beginning of verbal communication
- basis of abstract thinking
- habituation
- mental mapping
- complex language
- mathematical concept formation.

For example, at 24 months children are assessed on their ability to follow simple directions (e.g., point to objects in a book when the assessor names them) and on their spoken vocabulary (e.g., name three objects in a book).

The BSID is a comprehensive assessment that can be quite lengthy to administer. On the other hand, the *Denver Developmental Screening Test* (DDST) (Frankenburg and Dodds 1967) was created to be administered by paediatricians or other health professionals and interpreted in 20 minutes. Scores indicate where children are relative to their peers and serves to identify early problems or delays that may need further examination. The language component of the scale is of most relevant here and was used in the first sweep of the MSC as an early assessment of infants' communication skills when they were 9 months of age. At this early age, the items focused on infants' communication including babies giving their caregiver objects, waving goodbye, smiling at caregiver and extending arms to indicate desire to be held.

At the second and third sweeps when children were 3 and 5 years of age, MCS used two well-established assessment tools: the naming vocabulary subscale of the *British Ability Scales* (BAS) (Elliott, Smith, and McCulloch 1997) and the School Readiness Composite (SRC) of the *Bracken Basic Concept Scale* (BBCS) (Bracken 1998). The former was also used in the EPPE study, which will be described in greater detail in a later section of this report (Sylva, Melhuish, Sammons, Siraj-Blatchford, and Taggart 2004).

The early years version of the BAS assesses the cognitive development of children ages 2.5 to 5 years of age, with a school age version for 6- to 17-year-olds. For children under the age of 3.5 years, children's 'general conceptual ability' (GCA) is computed based on a mix of early verbal capability, problem solving and comprehension including:

- block building (spatial awareness)
- verbal comprehension
- picture similarities (non-verbal comprehension)
- naming vocabulary.

For slightly older children, GCA is comprised of three distinct scales capturing verbal ability, pictorial reasoning ability and spatial ability.

The SRC from the Bracken measure assesses 2.5- to 8-year-old children's readiness for school via examination of the following basic concepts:

- colours
- letters
- numbers/counting
- sizes
- comparisons of objects
- shapes.

The SRC is a non-verbal test, requiring children to point but not necessarily speak, which is useful to separate out verbal delays and disabilities from more general cognitive delays.

Language development of young children

Although covered to some extent in the assessments above, many standardised measures of cognitive development focus exclusively on language development and vocabulary. Although the assessments vary, two aspects of early language are important:

- *receptive* language development focuses on comprehension of words and sentences
- *productive* language development focuses on articulation of words in speech.

Children generally produce their first words between 9 to 12 months of age, and individual differences in development tend to remain stable over time such that children who have more vocabulary at 2 years of age will likely perform better on verbal tests in later years. Further, language facilitates learning in other domains including children's reasoning skills, ability to problem solve and social behaviour (MacWhinney and Bornstein 2003). The quality and quantity of input children receive is a very important predictor of vocabulary development. There are therefore obvious links between language development and the amount of communication children are exposed to in the early years, a topic explored in greater detail in a later section of this report (MacWhinney and Bornstein 2003). Below we review some of the key language and vocabulary specific assessments used in studies.

The *Reynall Developmental Language Scales* (RDLS) (Reynell 1990) was designed to detect changes in language development in young children ages

1 to 7 years. The RDLS includes a verbal comprehension and an expressive language scale, the former of which can be completed orally or using pointing.

The *Preschool Language Scale* (PLS) (Zimmerman, Steiner, and Pond 1979) assesses language development for children from 2 weeks to 6 years of age including vocabulary, grammar, morphology and language reasoning. Administered by clinicians, the test is comprised of two parts:

1. an auditory comprehension subscale that measures what children know (receptive language)
2. an expressive communication scales that measures what children actually say (productive language).

Finally, the *Peabody Picture Vocabulary Test* (PPVT) (Dunn and Dunn 1997) assesses receptive ability from 2.5 years and older. The PPVT uses picture 'plates' where respondents are asked to select which picture from four corresponds to the stimulus word from the administrator. The PPVT is desirable because of its relatively quick administration time (approximately 12 minutes), use with a wide range of age groups and the fact that it requires no oral or written responses and no reading.

These three language tests have been widely used in many large US studies.

Even from an early age, there is continuity in children's cognitive skills: the MCS found that children showing good cognitive skills at age 3 were likely to maintain them at age 5 years (Hansen and Joshi 2008). Indeed, early cognitive scores are one of the strongest predictors of later cognitive scores accounting for child and family background characteristics, maternal behaviour and child care usage (Cullis and Hansen 2008). A recent study re-examining data from six longitudinal studies in Britain, the US and Canada reported that the strongest predictors of children's achievement in secondary school were children's math, reading and attention skills (using many of the measures cited above) measured prior to school entry (Duncan, Dowsett, Claessens, Magnuson, Huston, Klebanov, Pagani, Feinstein, Engel, Brooks-Gunn, Sexton, and Duckworth 2007). Although children's development remains flexible, their early experiences and abilities do appear to set them on a path that can determine, in part, their later academic performance.

Measures used for school-aged children

Most the assessments described above can also be used for children once they enter primary school. In addition to these cognitive measures, assessment or achievement tests also become quite common. In England, children undergo a series of *national assessments* at the end of each key stage:

- Key Stage 1: ages 5 to 7
- Key Stage 2: ages 7 to 11
- Key Stage 3: ages 11 to 14.

At these endpoints, teachers formally assess children's performance and progress based on several tasks and tests. Teachers rate children's skills,

knowledge and behaviours against example criteria. The teacher assessment at Key Stage 1 incorporates:

- reading
- writing
- speaking and listening
- maths
- science.

The ALSPAC study assessed children's cognitive development using similar teacher-reported assessments and found modest correlations between the assessment prior to school entry and the Key Stage 1 results (CPMO Research Team 2006). Children's own perceptions of their school-based competence, related to their self-esteem, may not be reliable until they are approximately 10 years of age or so (Plank and MacIver 2003).

While these assessments are based, to some extent, on tests and activities administered to children, they are not standardised assessments. Some research studies have chosen to use standardised achievement tests, which enable children to be compared to other children their age.

The *Peabody Individual Achievement Test* (PIAT) (Markwardt 1989) and the *Woodcock-Johnson Psycho-Educational Battery-Revised* (WJ-R) (Woodcock and Johnson 1990) are two examples used widely in the US. The tests include assessments of:

- receptive language
- reading
- spelling
- phonics
- reading comprehension
- writing
- solving practical maths problems
- general information.

Another aspect of children's cognitive well-being, albeit not a cognitive skill *per se*, is children's *school engagement*. School engagement is believed to be crucial for children's learning and includes children's enjoyment of learning, their effort in school tasks and participation in school (Moore, Vandivere, Atienza, and Thiot 2008). Often included in surveys focusing on older children, school engagement can be measured via child-, parent- or teacher-report.

In the aforementioned EPPE study, children were asked to rate their *perceptions of their experiences at school* at age 7 including their enjoyment, their perceptions of their performance, their behaviour at school and their grievances (Sylva, Melhuish, Sammons, Siraj-Blatchford, and Taggart 2008). Table 2.4 below summarises the assessment.

Table 2.4. EPPE study assessment of pupils' experiences at school

Enjoyment of school	**Behaviour self-image**
• I like school • I like answering questions in class • I like reading	• I try to do my best at school • I am kind to other children • I behave well in class

- I like doing number work
- I like science
- School is interesting

Academic self-image

- I am clever
- My teacher thinks I am clever
- I do my work properly

Alienation

- I get tired at school
- I get fed up at school
- I get angry at school

Findings from a US school-based study used a teacher-report assessment of children's engagement in the classroom and found that pupils' early engagement, measured in first grade, remained strong predictors of their achievement test scores in fourth grade (Alexander, Entwisle, and Dauber 1993).

Among even younger children, one study of early childhood in the US, the Early Childhood Longitudinal Study – Kindergarten Class of 1998-1999 (ECLS-K), used parent- and teacher-reported assessments of children's 'approaches to learning' in kindergarten and first grade (Rock, Pollack, and Germino 2002). Among other topics, the measure captured their early engagement including:

- attentiveness
- task persistence
- eagerness to learn.

Measures of school engagement also cover *absence and attendance* at school. These data are generally collected by government departments on an annual basis. In England, statistics are available from the Department of Children, Schools and Families (DCSF) on provision for children under 5 years, which includes data on the numbers of 3- and 4-year-old children benefiting from some free early years education, along with absence (authorised and unauthorised) and exclusion data for both primary and secondary schools.

This overview aimed to summarise some of the key assessments of children's cognitive development and growth. The majority of assessments reviewed are relatively standardised assessments that look at children's performance relative to representative samples of children of the same age. While these assessments are useful and are linked to children's future academic performance (Feinstein and Duckworth 2006; Siegler 2003), they do not tell us very much about children's experiences as learners. Teacher performance assessments and questions about children's engagement in school are also useful to better understand how children feel about school and their place within it. Indeed, most comprehensive studies of children's development include a range of assessments of children's cognitive development and performance to look at the relationships between the different measures.

Conclusion

Young children's cognitive development is perhaps the domain of well-being that is focused on the most by policymakers due, in part, to the links between early cognitive and language development and later achievement.

Assessments of children's engagement in school and motivation to learn are also important aspects of children's well-being. Children's engagement in school and willingness to learn is likely linked to their emotional well-being and their beliefs about themselves, as discussed in the following section. These are perhaps best assessed directly by children, although for younger children, teachers can report on children's school-based behaviour.

Section summary: Cognitive and language development and school performance

- Key cognitive measures include verbal and vocabulary, literacy and numeracy, intelligence, general knowledge, problem solving, educational achievement, school engagement and participation.
- Cognitive and language development measures tend to focus on the identification of *positive* skills and competences.
- There are many standardised assessments of children's cognitive development applicable to children from 1 year of age.
- Preschool assessments tend to focus on gauging school readiness; these tests are commonly administered by trained examiners.
- Measures of language development usually comprise assessments of *receptive* language (i.e., what children understand) and *productive* language (i.e., what children say and how they say it).
- Early language development is key to facilitating better learning, and differences in development tend to stay stable over time.
- Cognition of school-aged children is widely measured using achievement tests and also by teacher-report of children's achievement.
- For school-age children, assessments describe children's experiences at school.
- There is very long-term links between children's early cognitive development and their later well-being – even into adulthood.

Beliefs

The final domain of children's well-being we discuss focuses on their beliefs about themselves, their standing in the world and their abilities. Here we primarily examine *self-concept* and *self-esteem* as these are possibly most relevant for young children. Related terms include *'locus of control', 'competence'* and *'self-efficacy'*. These concepts each involve how children view themselves and the degree to which they believe they can influence desired outcomes (Schunk and Pajares 2005).

In particular, self-concept focuses on children's beliefs about their own attributes as a result of their experiences (Davis-Kean and Sandler 2001; Zaff and Hair 2003). The development of self-concept starts at a very basic level with toddlers recognising their own image and over time incorporates and synthesises the vast information children take in via their interactions with the world. Self-concept attempts to answer 'who are you?'. Self-esteem is really an offshoot of self-concept, expanding the 'who are you?' question to include an evaluative element. That is, self-esteem is children's assessment of who they are, their satisfaction with themselves and their

feelings of worth relative to others (Davis-Kean and Sandler 2001; Zaff and Hair 2003). The explicit measurement of self-esteem is generally not valid for young children.

There is some debate regarding the age at which it is appropriate to assess these concepts of the self. Some researchers do not think that young children (under 8 years of age) have the cognitive capacity to understand abstract questions related to 'who are you?'. By and large, however, research has demonstrated that by 4 years of age or so, children possess the ability to discuss themselves at least in relatively simple comparative terms (Davis-Kean and Sandler 2001).

Measurement of children's self-concept and self-esteem

Before describing some of the key types of assessments used to measure young children's self-concept and self-esteem, we first summarise *mastery motivation*, often seen as a precursor to self-esteem. Mastery motivation takes into account infants' intrinsic need to master their own environments.

Rudimentary mastery behaviours are seen in the first few months of life when infants attend to new objects and explore them orally and manually. Very early on, infants become aware of contingency between their actions and subsequent events, and maintain actions that have interesting contingent feedback (Jennings and Dietz 2003). During the toddler years, children are able to conceptualise endpoints or outcomes to their activities and form standards to evaluate the outcome of actions. They protest unneeded help as a sign of their developing agency. In the preschool years, children begin to focus on whether tasks are challenging or require skill and start to compare their performance with others.

Assessments of mastery motivation is, not surprisingly, often observational where children are given tasks and their subsequent behaviours including persistence and affect are observed. The Behavior Rating Scale, which is part of BSID reviewed previously, includes dimensions on persistence and enthusiasm towards tasks (Bayley 1993).

Certainly, these early behaviours have been linked to later cognitive development such that infants with high task persistence and mastery behaviour exhibited high IQ scores during the preschool years (Jennings and Dietz 2003). The provision of stimulating toys and appropriate parental support for children's autonomy, which will be reviewed in a later section, are critically important to children's early mastery behaviour. Beyond facilitating children's cognitive development, early mastery behaviour and motivation sets the stage for children's beliefs that they can achieve what they set out to do.

Moving on to self-concept and self-esteem, it should be noted that most measures for young children do not necessarily distinguish between the two, owing in large part to the fact that young children cannot necessarily gauge traits and dispositions. That is, young children can identify whether they engage in certain behaviours or activities, which can proxy the way they view themselves. They cannot necessarily identify whether they are smart, popular, athletic and so on (Eder 1990; Harter and Pike 1984).

A range of short assessments exist to gauge children's self beliefs. Most self-concept assessments created for children between the ages of 3 and 8 years use pictures to help elucidate the information to children. We summarise three measures here, but see Hughes (1984) for a more thorough review of these assessments.

The *Pictorial Self-Concept Scale* (Bolea, Felker, and Barnes 1971) created for early primary school-aged children uses 50 cards, each depicting a child (matched to target children's sex) engaged in various activities or displaying certain behaviours. Children rate whether the cartoon figure is like them, sometimes like them or not like them at all. A weighted score of children's responses is computed with high scores indicative of high self-concept.

The *Pictorial Scale of Perceived Competence and Social Acceptance for Young Children* (PSPCSA) (Harter and Pike 1984) is a revised version of the most commonly used self-concept assessments – the *Self-Perception Profile for Children* – created for young children aged 4 to 7 years. The scale requires children to make self-judgements on 25 behavioural descriptions of their abilities rather than evaluating whether they possess certain traits. Using 'picture plates' children are shown two pictures of matched sex children engaged in the same activity – one quite successful at the activity and one not very successful. Children are read a statement pertaining to each of the pictures and are asked to indicate which of the children they are most like. In the second step, children are asked to indicted whether they are a lot like that person or a little bit like that person. The behavioural descriptions capture children's perceived competence along four dimensions:

1. *cognitive competence* including whether children are good at puzzles, knows names of colours and are good at counting
2. *physical competence* including whether children are good at climbing, swinging and running
3. *peer acceptance* where children indicate if they have lots of friends, have friends on the playground and eat dinner at friends' homes
4. *maternal acceptance* which looks at whether mother smiles, reads to you and talks to you.

The first two dimensions are combined to assess children's *general competence* and the latter two, *social acceptance.*

Finally, the *Self-View Interview* (Eder 1990) uses a similar methodology as the PSPCSA, but includes behaviours and activities relating to a more expanse set of dimensions including:

- *achievement* defined as working hard, enjoys demanding activities and is a perfectionist
- *aggression* includes physically assertive behaviour, hurting and frightening others
- *alienation* for children who believe that others wish to harm them and feel left out and alone
- *harm-avoidance* includes avoiding possibility of physical danger and seeking physical safety

- *control* defined as planfulness, not doing things on the spur of the moment and not beginning one activity without finishing previous
- *social closeness* looks at friendship and intimacy
- *social potency* covers leadership, being the centre of attention and ability to influence others
- *stress reaction* highlights feeling scared, upset or angry
- *traditionalism* examines concern about authority
- *well-being* includes happiness, enthusiasm, degree of comfort.

The latter two measures directly assess children's self-perceptions along various dimensions or domains. Research has supported this differentiation between children's global concept of themselves as an individual and their views within discrete categories, suggesting that there is variability in how children perceive themselves across different domains or contexts (Schunk and Pajares 2005). Also, there is likely a bi-directional relationship between children's self-concept in a particular domain and their performance such that positive performance favourably affects children's self-concept, and a favourable self-concept likely affects children's performance (Davis-Kean and Sandler 2001; Hughes 1984).

As children grow older, assessments of their self-efficacy, which captures children's perceived capabilities to learn or perform behaviours at designated levels becomes increasingly important (Bandura 1977; Schunk and Pajares 2005). While there is not direct correspondence between positive self-concept and high self-efficacy, linkages exist. Children with positive self-concepts may be more likely to approach new tasks with confidence. Self-efficacy is generally examined by asking individuals to indicate the extent to which they believe they can accomplish a task successfully. Clearly, this type of assessment is not appropriate for young children. The assessments reviewed above, however, may serve as important precursors to self-efficacy.

Conclusion

This section has reviewed in brief young children's beliefs about themselves. We focused on self-concept as this is most reliably measured for young children. Self-esteem, self-efficacy and perceptions of competence become increasingly important in middle childhood.

Generally, assessing children's beliefs about themselves is open to critique. One of the problems is that there are a lot of measures, but little research attempting to link the different assessments to see where the commonalties are and if the assessments are reliable with one another. A recent review of self-concept measures for young children found that the setting in which children were administered the assessment, the number of included items and the age of the child were each related to the usefulness of the measures (Davis-Kean and Sandler 2001). The authors suggested that parent- and teacher-report methods may be useful for very young children until they get a bit older and can understand the concept of self-esteem or self-efficacy to complete a more detailed assessment.

Section summary: Beliefs

- Self-concept, self-esteem, self-efficacy, competence and related constructs focus on children's beliefs about themselves and their ability to influence desired outcomes.
- Self-concept is most relevant for young children as it focuses rather simply on who children think they are.
- By 4 years of age, children are able to discuss themselves in very simple terms.
- Measures of self-concept for young children are administered by an examiner and use pictures to gauge children's beliefs about themselves (i.e., do children identify with the person in the picture?).
- Children have global self-concepts as well as domain-specific self-concepts.
- Self-efficacy – children's beliefs regarding whether they can achieve what they set out to do – become very important in middle and late childhood.

3. Development in context

Thus far, this review has focused on defining and describing the key domains of children's well-being. The review has highlighted how these domains are commonly measured and assessed and why they matter for children's overall well-being in the short- and long-term.

The discussion has not yet placed children's development in context. In this case, contexts refer to the environments in which children develop and their relationships and experiences with others. Enabling environments provide the proper supports necessary for children to thrive. While the contexts in which children live, learn and develop are not part of their core well-being *per se*, it is impossible to describe young children's well-being absent of the ecology of which children are part.

Contexts have varying impacts on children's development depending on the degree to which children directly or indirectly interact with them. For example, the family context is quite proximal and likely has direct impacts on children's well-being, while the economic context of the UK is more distal and likely impacts children indirectly.

In the following sections, we focus on three of the key contexts of young children's development and well-being including:

1. family economic status and resources
2. caregiving and the home environment
3. features of the community and neighbourhood.

These three contexts were chosen for several reasons. First, they are all fairly proximal – particularly the first two – such that children develop in and as part of these environments starting at a very young age. Indeed, as will be described in more detail further on, the community and neighbourhood context is perhaps more relevant for children once they enter school and its influence on children's development strengthens into the adolescent years when young people spend significant amounts of time outside of the home. Second, there is extensive evidence on the influence of these three contexts on young children's development. Finally, it is difficult to describe children's well-being independent of these contexts; very rarely do studies describe an aspect of children's well-being with accounting for or mentioning these contextual factors.

Within each context, we define each of the key features and describe common measurement frameworks. As much as possible, we focus on data sources from the UK. We then summarise existing evidence on how these contexts link to children's well-being including long-term associations as relevant.

Family economic status and resources

Families' economic status is one of the most frequently studied contexts of child development. As we demonstrate below, growing up in poverty affects children's development from birth and has lasting impacts throughout the

life course. Most studies examining children's well-being account for their economic backgrounds. This section provides an overview of recent research on children's economic background including how it is measured and how it has been studied.

Defining and measuring family economic status

Family economic status and resources focus on families' ability to afford the basic necessities and remain free from financial stress and worry. Total income, family income relative to other families and families' ability to make ends meet to provide food, shelter and other goods for their families are relevant. The most common indicator of economic status is whether or not a family is living in poverty.

In most countries, income poverty typically is defined by official poverty thresholds, which delineate families whose income falls above the poverty line as 'not poor' and families whose incomes are at or below the threshold as 'poor'. Two general types of thresholds exist, absolute and relative. *Absolute poverty thresholds* are based solely on families' resources with no consideration for other families' economic situations. *Relative poverty thresholds*, on the other hand, are calculated by comparing a family's resources to that of the average family. Using a relative measure, fluctuations in average or median incomes across the geography of interest can change a family's poverty status even if their income is relatively stable over time. The idea behind the relative measure is that if a family has fewer resources than the average family, they are likely to experience hardship.

The UK uses a relative poverty measure, wherein families are considered to be living in poverty if their household incomes, after deducting housing costs, are below 60 percent of the median UK income. Using this measure, about 1 in 3 children in the UK live in impoverished households (Bradshaw 2006). Relative to families without children, families with children are much more likely to live in poverty (Gregg, Harkness, and Machin 1999). Further, the UK has one of the highest child poverty rates in the EU and across the OECD, better only than Italy, Portugal and Slovakia in the EU and more than double the rates in the Nordic countries (Bradshaw 2007; UNICEF 2007).

Family poverty hardly occurs in a vacuum and poverty measures are frequently examined alongside a range of other *socio-economic indicators* including:

- family structure (notably whether family is headed by a lone parent)
- parent educational attainment
- employment status
- occupational status
- mother age at first birth
- number of children in household
- receipt of benefits (e.g., Income Support, Income-Based Job Seekers Allowance).

Each of these indicators is strongly associated with child poverty, notably lone parenthood, early parenthood and worklessness (Bradshaw 2005; Bradshaw and Holmes 2008; Gregg, Harkness, and Machin 1999). Indeed,

increases in poverty over time are often attributed to the rise in lone parents and worklessness in households. Ethnicity (BME), housing tenure (e.g., rental, Local Authority housing) and neighbourhood-level disadvantage are other demographic characteristics strongly associated with poverty.

Family poverty and related socio-economic indicators provide a fairly static view of families' lives such that they reflect families' status at one point in time based on discrete (i.e., yes/no) indicators. *Income is quite volatile*, so it can be quite difficult to gauge the impact of income poverty if multiple assessments over time are not available (Bradshaw and Holmes 2008; Shonkoff and Phillips 2000). Data from the MSC revealed that between 9 months and 3 years of age nearly 18 percent of children either moved into or out of poverty (Bradshaw and Holmes 2008); changes in employment status and family structure were the most common predictors of these poverty movements.

To some extent, these fluctuations demonstrate the somewhat arbitrary nature of poverty thresholds. More recent conceptualisations of family economic resources have attempted to better reflect the dynamic nature of family economics as well as families' own perceptions of their economic standing.

Poverty dynamics incorporate a time and depth dimension to basic poverty measures. If researchers have access to longitudinal data, that is data collected on the same families over time, they can look both the developmental timing of poverty and duration of poverty in children's lives (Bradshaw 2005; Brooks-Gunn and Duncan 1997). Studies examining the *developmental timing of poverty* look at whether poverty experienced early in children's lives is worse for long-term outcomes than poverty experienced in middle childhood or adolescence. Duration studies focus on the *length of time* children have lived in poverty and can examine short periods of time (e.g., number of years in the first 5 years of life) or duration across the entire childhood years. Children who live in poverty for all or most of the period under study are said to be living in *chronic or persistent poverty*. The severity of poverty takes into account how far below the median income poor families' income actually falls. Some studies in the UK have classified 'severe' poverty as families whose incomes fall below 27 percent of the median (Bradshaw 2005).

While measures of poverty dynamics provide more information about family economic resources than dichotomous point-in-time poverty measures, they are still based on the standard UK definition of poverty. Some experts argue that this measure is problematic on several levels. First, it makes cross-country comparisons quite difficult as the median income in different countries varies dramatically. Second, income is often inaccurately reported by household members. Third, and perhaps most importantly, income tells us very little about families' *experiences* of poverty both in terms of their standard of living as well as how they feel relative to others ((Bradshaw 2007).

Related to this third point, many experts have been using available data to create alternate assessments of family economic resources, often used in parallel with the more traditional poverty and socio-economic indicators. For example, Bradshaw (2005; 2006; 2007) looked at two additional assessments of child poverty in his cross-EU and UK specific research including:

1. what he termed '*subjective poverty*' comprising parents' reports regarding whether they have difficulty or great difficulty making ends meet and
2. *deprivation*, which tallies parents' responses to nine affordability items including keeping household warm, going on an annual holiday, having guests over for a meal and paying rent (families who lack 2-3 or more of the 9 items are classified as 'deprived').

Contrasting these three measures, more children in the UK meet the criteria for income poverty than they do subjective poverty or deprivation, particularly the latter. The oft-quoted UNICEF Report Card 7 used a similar measurement system, which includes income poverty, unemployment/inactivity and deprivation (UNICEF 2007). The main US repository for well-being data includes information on parents' ability to provide for children's nutritional needs, which reflects the fact that children's nutrition in crucial for many aspects of their development (Federal Interagency Forum on Child and Family Statistics 2008).

Many deprivation assessments, including UNICEF, include the absence of learning materials in the home (e.g., whether child has a desk for study, a quiet place to work, a computer for schoolwork, educational software, internet, calculator, dictionary, school texts and at least 10 books in the home) (Bradshaw 2006; UNICEF 2007). While the lack of learning materials is probably an aspect of deprivation, particularly from a child's point of view, it overlaps with assessment of the quality of the caregiving environment. We include the presence of learning materials in the following section examining caregiving and the home environment, although we acknowledge its importance here.

Income-based measures such as poverty and families' perceptions of their economic well-being are correlated, as one would expect, yet not perfectly so. Data from the MSC revealed that about 60 percent of families who reported significant financial difficulty actually had incomes below the UK poverty line (Hansen and Joshi 2007).

Another aspect of family economic resources that is not frequently studied, but likely has significant impacts on children's feelings and behaviour is the stigma associated with being poor. Recent findings from a qualitative study of hardship in England found that many of their respondents, particularly those living in more affluent areas, felt shame surrounding their poverty status (Hooper, Gorin, Cabral, and Dyson 2007). These findings suggest that these social comparisons and feelings of inequality among poor children relative to their more affluent peers reflect an important aspect of poverty and ought to be studied further.

Links between poverty and children's well-being

Armed with an understanding of how family economic resources are commonly assessed, the remainder of this section details why poverty and economic resources are so important to any discussion of young children's well-being. We review research from the vast array of work examining the links between families' economic resources – notably poverty – and children's well-being.

The main domains of well-being examined vis-à-vis family poverty are children's physical health, their cognitive outcomes and their emotions and behaviour. In brief, this research reveals that poverty has strong and long-lasting influences on children's outcomes. Further, later in this report we will reveal that it is not necessarily poverty *per se* that is so damaging for children, but what comes alongside economic disadvantage – stressed parents, poor home learning environments and housing conditions and residence in disadvantaged neighbourhoods.

Physical health

Starting with the basic indicators of physical health, analysis of the UNICEF index of child well-being data revealed that relative poverty is strongly associated with an increased probability of infant mortality, low birth weight, accidents and injuries and healthy eating and exercise (Pickett and Wilkinson 2007). As documented in several research reviews (Beresford, Sloper, and Bradshaw 2005; Brooks-Gunn and Duncan 1997; Fauth, Brady-Smith, and Brooks-Gunn 2003; Finch and Searle 2005; Hirsch and Spencer 2008; Hooper 2005), poor children relative to their non-poor peers are also more likely to:

- experience abuse and injury (accidental and non-accidental)
- be exposed to poisonous toxins
- be overweight
- be diagnosed with asthma
- report poorer general health
- not be breastfed.

Recent data from the first three sweeps of the MCS when children were 9 months to 5 years of age support these findings, revealing persistent health inequalities between poor children and their non-poor peers (Dex and Joshi 2004; Hansen and Joshi 2007; Hansen and Joshi 2008). Findings from ALSPAC revealed that economic deprivation was the strongest predictor of the probability that children were investigated or placed on the local register for maltreatment: the odds that deprived children were on the register were 11 times that of non-deprived children (Sidebotham, Heron, and ALSPAC Study Team 2006). Across the board, the evidence suggests that the deleterious influence of poverty on children's physical well-being begins at birth – and likely before – and continues across the early childhood years.

Cognitive outcomes

A large body of evidence from the US in the 1990s documented differences in cognitive outcomes between poor and non-poor children from the age of 2 to 3 years onwards (Duncan, Brooks-Gunn, and Klebanov 1994; Duncan and Brooks-Gunn 1997; Heckman 2006; Klebanov, Brooks-Gunn, McCarton, and McCormick 1998; Smith, Brooks-Gunn, and Klebanov 1997). In the

early years, these differences were quite large. The US studies also revealed that children fare the worst when families live in severe poverty, when family poverty is experienced early in children's lives and in situations of chronic poverty (Brooks-Gunn and Duncan 1997; Brooks-Gunn, Duncan, and Britto 1999).

Emerging findings from the MSC have also documented the deleterious impacts of early and persistent poverty on children's cognitive outcomes (Cullis and Hansen 2008; Kiernan and Mensah 2008). The data revealed early cognitive disadvantage for 3- and 5-year-old children in poverty. Poor children were 3 to 9 months behind their non-poor peers in various assessments of vocabulary, school readiness and pattern construction. Further, family income predicted, in part, the probability that children scored in the bottom 20 percent of two cognitive assessments at 5 years (Cullis and Hansen 2008; Hansen and Joshi 2008).

Findings from ALSPAC revealed that 4- to 5-year-old children from the poorest fifth of homes were more than 3 points behind the most affluent fifth of children on achievement tests examining reading, writing, maths and language skills (CPMO Research Team 2006). Family income remained a significant predictor of achievement at the end of Key Stage 1.

In quite a few studies – both in the UK and US – other family background characteristics (e.g., maternal education, ethnicity, residence in social housing) were significantly linked to children's outcomes above and beyond the income or poverty measures, suggesting that policies to improve children's well-being should not just target income (Blau 1999).

The implications of early disadvantage for poor children's achievement are long lasting. Studies have found that family income measured during the early childhood years is linked to later educational attainment and risk of school exclusion (Brooks-Gunn and Duncan 1997; Duncan, Yeung, Brooks-Gunn, and Smith 1998). Using longitudinal data from the 1970 British Cohort Study (BCS), which has tracked children well into adulthood, Feinstein and colleagues have reported that early cognitive outcomes – measured at age 5 years – were significant predictors of both age 10 achievement and age 30 qualifications and wages (Feinstein and Duckworth 2006). More nuanced analyses revealed that the benefits of high early cognitive scores on later well-being were significantly dampened among children from low socio-economic groups (Feinstein, Hearn, Renton, Abrahams, and MacLeod 2007). That is, by the time children were 10 years of age, children from high socio-economic groups with poor early cognitive scores surpassed poor children with high early scores in achievement. Early evidence from the MCS suggests that a similar pattern may be in place among this more recent cohort of children (Cullis and Hansen 2008).

A large body of evidence demonstrates the unfavourable links between early childhood economic disadvantage and children's cognitive outcomes. These associations are quite strong in the early years and have long lasting impacts on children's well-being.

Emotional and behavioural outcomes

Much like the findings reviewed above on cognitive outcomes, there exists a vast evidence base documenting associations between family poverty experienced in early childhood and children's mental and emotional well-being as young as 3 years of age (Duncan, Brooks-Gunn, and Klebanov 1994; Duncan and Brooks-Gunn 1997; Korenman, Miller, and Sjaastad 1995; McLeod and Shanahan 1993; Smith, Brooks-Gunn, and Klebanov 1997). In most studies, negative indicators of well-being are used documenting children's behaviour problems including assessments of both internalising and externalising behaviours. Associations between family income poverty and children's early mental health are generally smaller than those found between poverty and children's cognitive outcomes. With respect to timing, depth, and duration of childhood poverty, the findings are not entirely consistent across studies and datasets (Brooks-Gunn and Duncan 1997; Duncan, Brooks-Gunn, and Klebanov 1994; Kiernan and Mensah 2008; McLeod and Shanahan 1993) and often vary depending on the exact behaviour problem being measured (Fauth, Brady-Smith, and Brooks-Gunn 2003), although early childhood poverty has been associated with depression that persists until late childhood, and may also impact young people's antisocial behaviour, anxiety, and hyperactivity (McLeod and Shanahan 1993; Pagani, Boulerice, and Tremblay 1997).

Averaging across internalising and externalising behaviours and social functioning, findings from the MSC demonstrated that at age 3, children in families living below the poverty line had problem scores that were 25 percent higher than their non-poor counterparts, although both groups of children did not fall below the 'normal' (i.e., clinical) range, on average (Hansen and Joshi 2007). Other analyses examining poverty dynamics found that the link between family income and children's behaviour was still evident at 5 years (Cullis and Hansen 2008), although maternal education was a stronger predictor of behavioural outcomes than was income. Maternal educational attainment was also strongly protective against children's behaviour problems scores being in the top 20 percent.

Findings from ALSPAC revealed that children in the poorest fifth of the sample had more behaviour problems at age 4 than children in the most affluent fifth (CPMO Research Team 2006).

Although research remains scant, researchers are beginning to examine links between families' socio-economic conditions and children's self-regulation, which incorporates their ability to purposely modulate behaviour or responses in different contexts. Children's ability to self-regulate may serve a useful function in conditions of high-risk including poverty where children are faced with multiple stressors: it may help them to divert their attention away from stressful events or help them adapt more effectively to stress (Lengua, Bush, Long, Kovacs, and Trancik 2008; Raver 2004). Findings from one study revealed that poor self-regulatory skills were particularly unfavourable for primary school-aged children living in conditions of high socio-economic risk vis-à-vis their internalising and externalising behaviour problems (Lengua et al. 2008). As self-regulation is believed to underpin most domains of children's development, the

implications of these findings are serious and suggest that parents' and infants' early regulatory activity should be a greater focus of practitioners.

Conclusion

This section described a key context of children's well-being. Definitions and common ways of measuring family economic status and resources were described. Relative to many other OECD – and EU – countries, the UK has a very high child poverty rate. Research examining the links between child poverty and children's well-being revealed that, by and large, poverty is unfavourably associated with a range of important outcomes for young children as early as infancy, in terms of physical health, and by the time they are toddlers for cognitive and behavioural outcomes. Although children exhibit variability in their well-being over time, there is evidence that the links between poverty and family income and their well-being are long lasting. Given the number of British children living in or near poverty, improving families' economic outcomes is central to the overall improvement in their well-being.

Beyond what was reviewed here, the extant research suggests that parents' income during childhood is significantly associated with children's incomes as adults (Blanden, Gregg, and Macmillan 2006), and that childhood poverty is linked with a range of adult outcomes from educational attainment to life satisfaction (Hobcraft and Kiernan 2001). There is an increasing focus on social mobility in Britain – the idea that the socio-economic class into which children are born need not determine their life chances. As we will describe in the following two sections, poverty affects the homes and environments that children grow up in. We need to think about the implications of families' economic status and resources and monitor the impacts from a very young age.

Section summary: Family economic status and resources

- Family economic status and resources focuses on families' ability to afford basic necessities and remain free from financial stress.
- Income poverty is the most common assessment of families' economic well-being.
- In England, a relative poverty measure is used to assess poverty status, where poverty is determined based on how far below the national median income families must live.
- Socio-economic indicators such as family structure (notably whether family is headed by a lone parent); parent educational attainment; employment status; occupational status; mother age at first birth; number of children in household; and receipt of benefits highly correlated with family poverty.
- Increasingly, assessment of family economic status takes into account families' *experiences* of deprivation, not just their income.
- Family income and poverty is fairly volatile across childhood.
- Growing up in poverty is one of the strongest and most persistent unfavourable predictors of children's well-being.

Caregiving and the home environment

Any review of young children's development needs to take into account the relationships, interactions and experiences they have at home. Alongside nurseries and schools, the home is where young children spend most of their time and where most of their early development occurs.

Many of the main sources of country-level indicator data do not include detailed statistics on caregiving behaviour, likely due to the difficulty in robustly assessing these behaviours and caregiver-child relationships on a large scale (Moore, Vandivere, Atienza, and Thiot 2008; Moore, Vandivere, Lippman, McPhee, and Bloch 2007).

At the most basic level, family-level indicators focus on readily available measures of family structure (e.g., lone parent families, married families), parental employment, parental educational attainment and mothers' age at first birth (Federal Interagency Forum on Child and Family Statistics 2008). These family demographic indicators overlap with assessments of family economic resources in many cases and are often thought of as part of families' socio-economic status. Perhaps the one exception is parental divorce or separation, which given the well-documented and unfavourable links between separations and children's well-being (Rodgers and Pryor 1998), should be captured in any assessment system. As these demographic indicators are easily measured in surveys, we do not focus in any detail on them except to note that their inclusion in a measurement system examining children's development is critical.

Kristin Moore from Child Trends and her colleagues in the US suggest a fairly holistic set of caregiver indicators should be captured in any comprehensive assessment of children's well-being (Moore and Theokas 2008; Moore, Vandivere, Atienza, and Thiot 2008) – many of which are included in larger studies of child development, such as ALSPAC and MSC including:

- family structure
- caregiver supportiveness and warmth
- caregiver mental health
- resources available in the home
- family activities.

Our framework below highlights similar themes. While the literature on caregiving and the home environment is too large to review in full for the purposes of this report, the following sections aim to give an overview of the key caregiving behaviours, interactions and routines that influence young children's development beginning prior to birth.

Stemming from the previous section on families' economic status, we also discuss how parenting and related behaviours are a key driver of the link between poverty and children's well-being. In many cases, we refer to mothers explicitly in our discussion. This is not to say that fathers, father figures or other caregivers are not extremely important in the development of children's well-being. Indeed, an increasing amount of research has begun considering mothers' *and* fathers' parenting behaviour (see e.g.,

Flouri and Buchanan 2004; Ryan, Martin, and Brooks-Gunn 2006), but much of the research focuses on mothers and maternal behaviour.

Prenatal and postnatal indicators

The impact of parents' behaviour on children's development begins prior to birth. A robust set of indicators should include assessments of mothers':

- antenatal nutrition
- weight gain (or loss) during pregnancy
- mothers' smoking or use of other substances during pregnancy
- maternal exposure to stress
- mental health issues (Leavitt, Tonniges, and Rogers 2003; Robinson, Oddy, Li, Kendall, Klerk, Silburn, Zubrick, Newnham, Stanley, and Mattes 2008).

Following birth, data should be collected on breastfeeding and postpartum mood.

These indicators are important, of course, because of their potential impacts on the unborn foetus and, after birth, infants that may last well into early childhood (for a review see Leavitt, Tonniges, and Rogers 2003).

- Nutrition is important in part because women who do not gain enough gestational weight experience an increased likelihood of delivering a low birth weight baby.
- The use of drugs and other substances during pregnancy have known harmful effects on the developing foetus and infant including addiction, risk of premature labour, intrauterine growth retardation, seizures, developmental delays and even infant mortality.
- Smoking during pregnancy has also been linked to children's behaviour problems years later (CPMO Research Team 2006).
- Mothers' exposure to antenatal stress, depression and anxiety can have long-lasting impacts on children's well-being, particularly their behaviour (Bergman, Sarkar, Glover, and O'Connor 2008; O'Connor, Heron, Golding, Glover, and ALSPAC Study Team 2003; Robinson et al. 2008).
- Exclusive breastfeeding is recommended up to 6 months because of its known benefits vis-à-vis digestion and the absorption of nutrients for infants. Breastfeeding is protective against food allergies, gastrointestinal problems and respiratory diseases during infancy and childhood, and facilitates the development of antibodies and the infants' immune system.

Prenatal and perinatal assessments of maternal behaviour and well-being provide a starting point from which infants' and young children's development can be assessed. These indicators are fairly common in national systems given the ease in which they can be reported and collected.

Early attachment and caregiver sensitivity

Once children are born, their well-being reflects more than physical health. Indeed, the relationship between mothers (or other caregivers) and their

infants is very important even from a very young age. In this section, we review early attachments and later caregiver-child relationships.

The field of *mother-infant attachment* dates back to the 1930s and reflects decades of thinking. While it is not necessary to measure attachment *per se* in a system of well-being indicators, a basic grounding in attachment is a useful way of understanding some of the key concepts and behaviours attributed to sensitive parenting as well as how early caregiving behaviours influences children's development. This section focuses on some of the key caregiving dimensions and how they are commonly measured. It also aims to link caregiving behaviour with children's outcomes.

Primary attachments are the initial emotional bonds infants form with others (Bridges 2003; Karen 1994). The idea of attachment perhaps started with the work of John Bowlby in the early and mid twentieth century who was the first to acknowledge that paramount to infants' development was the emotional quality of the home environment including two key factors:

1. prolonged separation between mothers and their young children
2. the emotional attitude of mothers towards their infants during standard caregiving tasks such as feeding and toilet training.

He viewed attachment as biological and necessary to survival: infants engage in instinctual behaviours such as crying and smiling, which unknowingly evoke caregiver responses and keep caregivers near to infants. These behaviours eventually become more conscious to infants as a means of garnering a response from their caregiver and, over time, turn into early feelings of love. Further, mothers engage in simultaneous behaviours to elicit these pleasant responses from their infants and a bi-direction, mutual relationship ensues.

Attachment gives infants a sense of security to explore their environments, using their caregivers as 'secure base' to whom they will return. Change in the environment including the presence of a stranger, hunger or tiredness may cause infants to feel less secure and thus seek comfort and proximity to caregiver.

Mary Ainsworth also conducted research on mother-infant relationships and introduced us to attachment patterns via the Strange Situation assessment (Ainsworth 1964). The laboratory based assessment examines infants' and toddlers' responses to the departure and subsequent return of their mothers after being left in a room in the company of a stranger. The idea behind the assessment was that young children who had experienced sensitive, responsive maternal care would react quite differently to this stressful situation than children who received insensitive and/or unresponsive care. Trained observers 'coded' these interactions, which are videotaped today, based on children's behaviours, and grouped children into one of four typologies defined by their level of attachment:

1. secure
2. insecure – ambivalent
3. insecure – avoidant
4. insecure – disorganised.

'*Securely attached*' children were able to separate from their mothers with minimal fuss, eagerly greeted their mothers upon reunification and sought their mothers' comfort when feeling distressed. These securely attached infants and toddlers are contrasted with insecurely attached children, which includes *ambivalent* (i.e., anxious, clingy, but not comforted by parent), *avoidant* (i.e., avoids and does not seek comfort from mother) and *disorganised* (i.e., shows a mixture of avoidant and ambivalent behaviour) types.

Researchers have examined the immediate and longer-term impacts of early attachments on children's well-being and found, in brief, that securely attached children are better able to adapt to new situations, have better self-control, demonstrate more persistence on tasks and are more pro-social behaviour towards peers than insecurely attached children (Karen 1994; O'Connor and Scott 2007). Further, because securely attached children feel safe to explore their environments and are encouraged to do so from their caregivers, secure attachment in the very early years is positively linked to early cognitive performance, notably language development (Bridges 2003; Pomerantz, Grolnick, and Price 2005).

While early attachments are important for children's well-being, we do not espouse the view that the influence of early parenting behaviour is irreversible. Indeed, one study found that children who had highly sensitive mothers at 3 years after experiencing low attachment in infancy had favourable cognitive and behavioural outcomes relative to children with insensitive mothers at 3 years, but strong infant attachments (Belsky and Fearon 2002).

The optimal behaviours exhibited by caregivers with secure attachments to their children include *consistency*, *contingency* (e.g., respond to bids from children) and *positive affect*. These behaviours remain no less important as children age and are frequently referred to as 'sensitivity'. In addition to responsiveness and warmth, sensitive parents *promote autonomy* by providing a supportive presence for children to explore the world independently. As children grow older, *parental involvement in schooling* becomes quite important as well.

Assessing caregiving behaviour is quite difficult – often time consuming and labour intensive. There are some self-report measures including parenting beliefs, styles and perceived competence used in several large UK studies. In the MCS, the following aspects of parenting were captured via parent-report:

- Postnatal attachment (9 months)
- Attitudes towards childrearing (e.g., importance of talking, cuddling and providing stimulation to baby; 9 months)
- Parent-child relationship (3 and 5 years)
- Time with child (3 and 5 years)
- Parenting style (e.g., firm rules and discipline, doing my best; 3 and 5 years)
- Parenting competence (3 and 5 years)
- Discipline (3 and 5 years)

These assessments are useful, but tell us little about the specific ways that caregivers interact with their children.

In several large US studies, parenting behaviour was captured through structured observations of parent-child dyads across the early years. The National Institute of Child Health and Human Development (NICHD) Study of Early Child Care and Youth Development and the Early Head Start Research and Evaluation Project (EHS) both included videotaped assessments of children and their primary caregivers engaged in a 'free play' task with books and different toys for a set amount of time.

In both studies, the semi-structured task was administered to the dyads when children were 14-15 months, 24 months, 36 months, 54 months and into the school years (with obvious adaptations to the coding scales as children aged). Parent and child behaviours including both positive and negative indicators were coded by trained observers. In both studies, analyses revealed that many of the observed parenting behaviours coalesced (i.e., the presence of one behaviour was usually associated with the presence of another behaviour) including:

- sensitivity
- responsiveness
- warmth and positive regard
- stimulation
- respect for child's autonomy.

The assessment used in EHS is summarised in Table 3.1 below. The EHS evaluation also captured fathering behaviour using the same observation system and found that the same behaviours were important for fathers as mothers (Ryan, Martin, and Brooks-Gunn 2006).

Table 3.1. EHS three-bag assessment to assess parenting behaviour

The Three-Bag Assessment was one of three activities parents and children completed as part of a 30-minute set of parent-child interactions videotaped in the home. During the task, the dyad was asked to play with three different sets of toys, each placed within a separate bag labeled '1,' '2' or '3'. The parent was told that they had 10 minutes to play with the three toys and that the only restriction was that they play with the toys in numerical order, beginning with bag #1 and ending with bag #3.

SCALES FOR PARENT'S BEHAVIOR

1. *Sensitivity:* how the parent observes and responds to the child's cues (gestures, expressions, and signals) during times of distress as well as non-distress
2. *Intrusiveness:* degree to which the parent controls the child rather than recognizing and respecting the validity of the child's perspective
3. *Stimulation of cognitive development:* parent's effortful teaching to enhance perceptual, cognitive, and linguistic development
4. *Positive regard:* parent's expression of love, respect and/or admiration for the child
5. *Negative regard:* parent's expression of discontent with, anger toward, disapproval of, and/or rejection of the child
6. *Detachment:* awareness of, attention to, and engagement with the child

SCALES FOR CHILD'S BEHAVIOR

1. *Engagement of parent:* extent to which the child (a) shows, initiates, and/or maintains interaction with the parent and (b) communicates positive regard and/or positive affect to the parent
2. *Sustained attention with objects:* child's sustained involvement with objects
3. *Negativity toward parent:* degree to which the child shows anger, hostility, or dislike toward parent

Each scale was coded by a trained observer on a 7-point scale where a score of '1' indicated very few or weak instances of behaviours relevant to the particular scale and '7' many or strong behaviours.

The 24- and 36-month scales were adapted by Christy Brady-Smith, Rebecca Fauth, Claudia O'Brien, Lisa Berlin and Anne M. Ware (Love, Eliason Kisker, Ross, Schochet, Brooks-Gunn, Paulsell, Boller, Constantine, Vogel, Fuligni, and Brady-Smith 2002).

Although the coding scales were slightly different in the two studies – one of which comprised an entirely low-income sample – both came up with highly reliable assessments of parenting behaviour that were quite strongly linked to children's outcomes including cognitive and language development, literacy and numeracy and social behaviour (Love et al. 2002; U.S. Department of Health and Human Services 2006), findings that are consistent across a wide body of research (O'Connor and Scott 2007). In general, parenting characterised by high levels of warmth, cognitive stimulation and clear limit-setting has been consistently associated with favourable cognitive, emotional and behavioural outcomes for children, with the opposite findings for parenting characterised by harsh, arbitrary discipline or emotional detachment (Baumrind 1966; Belsky 1999; Berlin and Cassidy 2000; McLoyd 1998; Shonkoff and Phillips 2000).

This section summarised some of the key parenting behaviours important for children's development from the time they are born. Assessing these behaviours on a large-scale is quite difficult, yet the importance of parenting to child development cannot be understated. At the very least caregiver-report measures of caregiving behaviour and parent-child relationships should be included in studies to proxy sensitive caregiving.

Home environment and dynamics

Most large studies in the UK and elsewhere include assessments of the home environment. Primarily focused on learning opportunities available in the home via the presence of tangible objects (e.g., books) as well as behaviours (e.g., parent reading to child), comprehensive measures also examine family interactions, routines and punishment. The evidence linking characteristics of the home environment to children's development is quite strong, making assessment of the home environment critical to understanding well-being (Sylva et al. 2004).

Measurement of the home environment generally takes 1 of 2 forms: (1) parent-report or (2) interviewer observation. Perhaps the most common assessment of the home environment, the *Home Observation for Measurement of the Environment* (HOME) combines both methods

incorporating semi-structured observation by an interviewer in the home setting with parent interview for less observable dynamics.

There are currently four versions of the HOME:

1. Infant Toddler – birth to 3 years
2. Early Childhood – 3 to 6 years
3. Middle Childhood – 6 to 10 years
4. Early Adolescence – 10 to 15 years.

Each was designed to measure the *quality and quantity of developmentally appropriate stimulation and support* available to children (Linver, Brooks-Gunn, and Cabrera 2004; Smith and Brun 2006; Totsika and Sylva 2004). The focus is not solely on the *provision of learning resources*, but also on *parental behaviours that facilitate learning such as reading, scaffolding and encouraging* children. The data are combined into sets of scales, each of which captures some dimension of the home environment. Table 3.2 below summarises the HOME scales.

Table 3.2. The Home Observation for Measurement of the Environment (HOME) subscales

Infant/Toddler (IT) (6 subscales, 45 items)	Early Childhood (EC) (8 subscales, 55 items)	Middle Childhood (MC) (7 subscales, 59 items)
1. Emotional & verbal responsivity 2. Avoidance of restriction & punishment 3. Organisation of physical & temporal environment 4. Provision of appropriate play materials 5. Involvement 6. Opportunities for variety in daily stimulation	1. Learning stimulation 2. Language stimulation 3. Physical environment 4. Responsivity 5. Academic stimulation 6. Modelling 7. Variety in experience 8. Acceptance	1. Emotional & verbal responsibility 2. Encouragement of maturity 3. Emotional climate 4. Growth fostering materials & experiences 5. Provision for active stimulation 6. Family participation in developmentally stimulating experiences 7. Aspects of the physical environment

There are some overlaps between the HOME observation and parental sensitivity, notably responsivity and warmth.

The HOME has been widely used and validated with diverse samples and has been examined as a key predictor of children's well-being, notably their cognitive development (Halle et al. 2008). Early HOME scores are also predictive of later outcomes (Bradley, Caldwell, Rock, Barnard, Gray, Hammond, Mitchell, Siegel, Ramey, and Gottfried 1989; Totsika and Sylva 2004). A large longitudinal examination of the links between HOME scores and children's cognitive development across the first 3 years of life revealed

that the provision of stimulating play materials, caregiver responsivity and involvement exhibited the strongest links to children's cognitive development (Bradley et al. 1989), suggesting that simply providing learning materials is important, but so too is parents' involvement in children's learning. As we will outline in a later section, HOME scores are often stronger predictors of children's outcomes than families' socio-economic status (Bradley et al. 1989; Sylva et al. 2004).

To some extent, the HOME and similar assessments are biased against lower socio-economic groups. That is, these observations value in part the presence of tangible objects in the home and family outings within the community. While poor parents may not have the purchasing power to provide some of these resources to their children, there are a range of other elements within the assessment that are not a direct function of financial resources.

Other studies have used other similar measures to capture the quality of the home environment. EPPE, an ongoing study of the influences of preschool and school educational environments on children's outcomes in England, also examined the home learning environment (HLE) (Sylva et al. 2004; Sylva et al. 2008). When children were 3 years of age, parents reported on how frequently their engaged in the following *educational activities and family routines*:

- going to the library
- being read to
- learning activities with the alphabet
- learning activities with numbers/shapes
- learning activities with songs/poems/nursery rhymes
- playing with letters/numbers
- painting or drawing
- playing with friends at home
- playing with friends elsewhere
- visiting relatives or friends
- shopping with parent
- watching TV
- eating meals with the family
- having a regular bedtime.

The study, which recently reported on children's outcomes through age 11, has consistently found that the early HLE was one of the strongest predictors of children's well-being throughout childhood including:

- cognitive and social/behavioural outcomes in the preschool years
- early primary school literacy and numeracy
- reading and maths scores at Key Stage 2
- self-regulation, pro-social behaviour and hyperactivity at age 11.

Links between early years HLE and later reading scores were particularly strong.

The home environment was also examined in MSC and ALSPAC. In ALSPAC, after controlling for a range of other influences, children who were read to once a week or less on average prior to school entry scored 1.6 points

behind children in households where reading occurred everyday on cognitive assessments. Children whose mothers rarely actively taught them were 3.6 points behind other children (CPMO Research Team 2006). These impacts were sustained several years later at the end of Key Stage 1. Daily reading activity was positively associated with cognitive outcomes and negatively with problem behaviour at age 5 in the MSC (Cullis and Hansen 2008).

Related to the home environment, and also captured in the EPPE HLE assessment, are family routines such as regular mealtimes and bedtimes and eating meals together. Routines were examined in MCS: more than 90 percent of children aged 5 years had regular bedtimes and mealtimes (Hansen and Joshi 2008). Routines influence children's behaviour and expectations from infancy onwards as they enable children to soothe themselves during bedtime, become part of social groups during mealtimes and prepare themselves for formal learning (Fiese, Eckert, and Spagnola 2006). Other studies have looked at the degree of 'chaos' in the home, which assesses unpredictability and confusion. A review from the US suggested that children living in chaotic homes were more likely to experience cognitive and behavioural difficulties relative to their peers living in more structured environments (Evans 2006).

Given the importance of the home environment to children's outcomes, the key features need to be included in any detailed study of children's well-being. The HOME observation and related scales are fairly easy to administer and have been included in many large studies of children's development.

Housing conditions

Housing conditions including *residential crowding, lack of central heating and the presence of damp or mould, air quality and excessive noise* are also important for children's well-being (Communities and Local Government 2008a; Communities and Local Government 2008b; Evans 2006; Huby and Bradshaw 2006; Quilgars 2005). While these indicators part of the home environment, as described above (e.g., whether the home is cluttered, cramped, dirty and unsafe), they are distinct in that the presence or absence of poor housing conditions may be out of the control of caregivers due to poverty or other factors.

The government mandates that everyone is entitled to a 'decent home' using the Housing Health and Safety Rating System (HHSRS), which focuses on health and safety risks inside and outside of the home as a result of deficiencies in design or maintenance (Communities and Local Government 2008a). In addition to a clean bill of health using the HHSRS, decent homes must also:

- be in a reasonable state of repair (including walls, roof, windows, electrics, boilers, gas fires)
- have reasonably modern facilities and services
- provide a reasonable degree of thermal comfort.

The English House Condition Survey, which since 2008 has been combined with the Survey of English Housing to create the new English Housing Survey, includes resident-report surveys, private landlord surveys, brief

interviewer assessments and a physical survey from professional surveyors (Communities and Local Government 2008a).

While the specific housing surveys provide a wealth of detailed information, many other studies incorporate self-report housing assessments as part of larger surveys (Evans 2006; Hansen and Joshi 2008). Surveys commonly include questions regarding respondents':

- experiences with housing maintenance problems including toilet or plumbing problems, heating problems, presence of rodents or bugs, leaks damp.
- use of central heating
- access to gardens and outdoor space.

Whether there anyone smokes inside of the house is usually also included in assessments (Evans 2006; Hansen and Joshi 2008).

Residential crowding is usually estimated by creating a proportion of the number of people residing in a dwelling by the number of rooms available for sleeping (i.e., including living areas and large kitchens). Children under 12 months of age are not included in household size estimates and children between the ages of 1 and 10 years are counted as half of a person (Reynolds and Robinson 2005). The bedroom standard (which has more stringent criteria than the traditional crowding assessment) is also used, in which the following family members should have one bedroom:

- married or cohabitating couples
- single adults over 21 years
- pairs of children less than 10 years
- pairs of same sex children between 10 and 21 years.

Data from the 2006 English House Condition Survey revealed some serious problems with the quality of housing in England.

- 35 percent of housing stock did not meet the decency criteria.
- 10 percent of homes had problems with damp.
- Around 140,000 homes with infants have serious damp or mould problems.
- 89 percent of homes have central heating.
- The homes of the poorest households were more likely than average to be in serious disrepair and to have problems with mould.

Data from the Housing in England survey reported that while only 2 percent of households lived in crowded conditions per the bedroom standard in 2006, 7 percent of families in the most deprived areas had one or more fewer bedrooms than needed (Communities and Local Government 2008b).

Unfortunately, few recent studies based in England have attempted to link these conditions with various aspects of young children's well-being. A detailed literature review from the US examining links between the physical environment and child development reported many unfavourable cognitive and behavioural outcomes as a result of exposure to excessive noise and crowding (Evans 2006). The results for crowding are the most conclusive, affecting children's motivation, cognitive and language ability, behaviour problems and their social skills.

Indeed, a 2005 report from Shelter examined crowding among 500 families in England reported that overcrowding led to:

- children not having enough room to play
- difficulty for children to complete their homework
- increased arguments and fighting among children
- disruption to daily routines (Reynolds and Robinson 2005).

Housing conditions including damp, heating problems, the presence of a smoker and overcrowding have also been linked to children's respiratory problems (Huby and Bradshaw 2006; Quilgars 2005).

In conclusion, housing disrepair and overcrowding have implications for children's well-being. Although housing quality is less proximal than other aspects of the caregiving and home environment, poor conditions can affect families. Housing quality is also another risk factor for deprived children.

Parenting in poverty: caregiver stress, mental health and investments

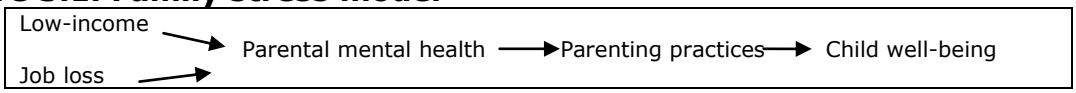
A large body of evidence has documented that caregiver stress, lack of social support and mental health problems, notably depression and anxiety, threaten children's well-being. Recent research from MCS has found that maternal depression (whether mother was ever depressed) was linked to their well-being at age 5 years assessed via the Foundation Stage Profile at the end of Year 1 and the SDQ. Further, maternal depression was linked to the probability that children were in the bottom 20 percent on both of these assessments as well as several other school readiness measures (Cullis and Hansen 2008). Maternal depression was also associated with children's problem behaviour at 5 years using ALSPAC data (CPMO Research Team 2006).

It is believed that maternal emotional distress and depression are associated with low parental supportiveness and warmth, emotional detachment and conflict between parents and children (NICHD Early Child Care Research Network 1999; Zahn-Waxler, Iannotti, Cummings, and Denham 1990). As such, depressed mothers may be less able to help children regulate negative feelings, and explore their environments and to set limits with their children, which have implications for children's cognitive, linguistic, behavioural and emotional development.

Many research studies examining the influences of caregiver stress and mental health on children's outcomes have been aimed at better understanding why children growing up in poverty are at such a disadvantage not only economically, but also developmentally relative to their non-poor peers (Katz, Corlyon, Placa, and Hunter 2007). This body of work has revealed that *family stress* is the driving force of the impacts of poverty and economic hardship on children's well-being. More explicitly, the 'family stress model' posits that poverty and economic insecurity trigger parental emotional distress, which unfavourably impacts on parenting practices, which in turn directly affect children's outcomes. Figure 3.1 below depicts the pathway from family financial strain to children's well-being. The

original proponents of this thesis originally tested this model with adolescents (Conger and Elder 1994; Elder 1974).

Figure 3.1. Family stress model



Researchers have also looked to the home environment to explain poverty – child development links. Often termed the '*investment model*', this strand of research hypothesises that constrained income prohibits parents from purchasing the materials and experiences that benefit children's development.

In recent years, researchers have examined whether family stress and the investment models are applicable to young children, and studies from the US have found strong support. In terms of the family stress model, several studies have found that financial stress and poverty impact young children's behaviour problem scores via associations between income and parents' emotional health and subsequently their parenting practices (Dodge, Pettit, and Bates 1994; Duncan, Brooks-Gunn, and Klebanov 1994; Linver, Brooks-Gunn, and Kohen 2002; McLeod and Shanahan 1993; Yeung, Linver, and Brooks-Gunn 2002).

The pathways predicting children's cognitive outcomes tend to be slightly different, with features of the home environment serving as an important link between family poverty and children's cognitive well-being (Brooks-Gunn, Duncan, Klebanov, and Sealand 1993; Duncan, Brooks-Gunn, and Klebanov 1994; Linver, Brooks-Gunn, and Kohen 2002; Yeung, Linver, and Brooks-Gunn 2002). The quality of the home environment may also serve as a pathway between poverty status and young children's behavioural development (Linver, Brooks-Gunn, and Kohen 2002; NICHD Early Child Care Research Network 2005; Yeung, Linver, and Brooks-Gunn 2002).

Just in the past year, researchers used the MSC data to examine the veracity of these two models on 3-year-old children from the UK. The findings were quite comparable to those reported using US longitudinal samples (Kiernan and Huerta 2008). Economic deprivation (i.e., income poverty, housing tenure and financial difficulties) was more strongly linked to cognitive than behavioural outcomes. Parenting reading activities were an important mediator of the association between deprivation and young children's cognitive outcomes. In terms of behaviour, maternal depression was strongly associated with both internalising and externalising problems, and poverty was associated with depression. Although depression, in of itself, was associated with more internalising and externalising symptoms, some of this link was accounted for by parenting practices including mother-child relations and harsh discipline (externalising only).

This section intended to bring together some of the findings from the sections on families' economic status and resources and parenting to help explain why children growing up in poverty are more likely than their counterparts to face challenges to their well-being. Poverty exerts a strong impact on parents who often face mental health problems and extreme

stress as a result. Depression and distress often make it difficult for parents to effectively interact with their children. Being poor also increases the probability that parents cannot afford materials and experiences to stimulate their children's burgeoning minds. The following discussion broadens some of this discussion to the community and neighbourhood context.

Conclusion

This section elucidated some the key aspects of parenting and the home environment to children's well-being. Particularly for young children, it is difficult to appraise their well-being without taking into account their experiences in the home. Not only do parenting practices and the home learning environment have sizable impacts on children's outcomes, but also it is difficult to talk about children's well-being if their home lives are unsuitable. The various features and constructs described in this section are generally not amenable to simplistic assessment. Rather, in many cases, detailed interviews and observations are the norm. Large-scale, representative longitudinal studies should include some of these more detailed measures to enable some assessment of children's experiences in their homes.

Section summary: Caregiving and the home environment

- The family and home environment is where young children spend most of their time.
- Assessments of the caregiver and home environment range from socio-demographic indicators such as family structure and mother age at first birth to observations of parent-child relationships or housing quality.
- The impact of parents' behaviour on children's well-being begins prior to birth via mothers' actions and lifestyle during pregnancy.
- Once children are born, parent-child relationships are assessed against the quality of their attachment.
- Early attachment behaviour often paves the way for later parenting behaviour including sensitivity, warmth, responsiveness, stimulation, intrusiveness, harshness and detachment.
- Parenting behaviour and parent-child relations are often best captured via observation in natural settings.
- One of the strongest influences on children's early well-being is the home learning environment, which focuses on parents' provision of learning opportunities in the home including both learning materials and their encouragement of children's learning behaviour.
- The home environment is generally examined via parent-report and observation.
- Housing conditions including crowding, presence of damp or mould and air quality also affect children's well-being.
- Many robust studies of housing do not include data on children's outcomes, however.
- Parent-child relationships are powerful pathways between poverty and child development. That is, poverty is strongly linked to parental stress and mental health, which affects parenting quality, which in

turn affects children's well-being.

Features of the community and neighbourhood

The final context we discuss vis-à-vis young children's well-being is the community and neighbourhood. Until the 1980s this key setting was largely left out of the child development literature (with the exception of some early work on 'juvenile delinquency' in inner city areas). In the US, and later the UK, the steady increase in pockets of concentrated poverty driven by deindustrialisation and the locale of social housing brought the neighbourhood context to the forefront of the research agenda. Although initially focusing on adults and employment opportunities, the discussion soon switched to children and young people and how growing up in a poor community affects their well-being – above and beyond their family socio-economic background.

In this section, we focus our review on several key topics. First, we define neighbourhoods and communities and describe the key elements that should be included in any assessment. This includes both objective dimensions such as neighbourhood-level income or unemployment as well as more subjective dimensions, which focus on residents' perceptions of neighbourhood quality and safety. Subsequently, we look at neighbourhood resources: the institutions and places where children go in their communities. We examine early years settings in most detail. Throughout this review, we describe research linking the community and neighbourhood context to children's well-being.

In general, neighbourhood influences on well-being and behaviour might be more pertinent for young people than children given that the former are allowed more independent exposure to their neighbourhoods than the latter (Graber and Brooks-Gunn 1996). Given the high rates of neighbourhood deprivation in England and the fact that early years settings and schools feature heavily in children's development, understanding how to measure and assess the community and neighbourhood context helps us to understand children's well-being.

Defining and measuring features of the community and neighbourhood

While it may be hard to separate out communities from neighbourhoods using available measures and assessments, they are distinct phenomenon. Communities are not necessarily dependent on geography as they refer to groups of people who share something or have something in common; they are social units first and foremost. Neighbourhoods are necessarily spatial and refer to geographic units in which residents share space and experiences (Barnes, Katz, Korbin, and O'Brien 2006). The geographic boundaries of neighbourhoods may be larger than perceived communities. In this section, we refer to geographic communities and use the terms 'communities' and 'neighbourhoods' interchangeably.

The size and boundaries of communities and neighbourhoods are both formally and informally defined according to, for example, government and administrative boundaries, major roads or train stations or residents' own

perceptions (Barnes, Katz, Korbin, and O'Brien 2006; Leventhal and Brooks-Gunn 2000). Research suggests that the administrative boundaries and residents' perceptions do not entirely overlap, with latter being considerably smaller than the formal (Sampson 1997).

The formal and informal nature of neighbourhood boundaries has consequences for its measurement. Because formal boundaries are generally dictated by the government, they often align with measures describing neighbourhood 'structural' features as collected by Census data and other government sources. On the other hand, obtaining data on residents' perceptions of their neighbourhoods in terms of public safety and order, social capital and other features, generally relies on residents' own interpretations of their neighbourhoods.

Structural features of neighbourhoods
As summarised above, *structural neighbourhood features* include *socio-demographic information collected from individual households or administrative records aggregated across a geographical boundary*. In England, a compilation of indicators based on Census data, benefits records and tax records, hospital admissions, educational data and police recorded crime records is used to create the *Index of Multiple Deprivation (IMD)*.

Initially released in 2004 (using 2001 data), a more recent set of indicators was released in 2007 (using 2005 data).[1] The IMD is available at several geographical levels. Notably, Lower Layer Super Output Areas (LSOAs), which are smaller than wards and include a minimum of 1,000 people and 400 households, are used to proxy neighbourhoods. There are 32,482 LSOAs within England. The IMD is also available for larger areas including the Local Authority district level (384 in England) and the County Council level (149 in England).

The IMD comprises the following indicators at a given geographic level, each of which includes several measures:

- income and benefits receipt
- employment
- health problems
- educational achievement and attainment
- access to services and housing
- crime
- air quality (Communities and Local Government 2007).

The IMD data are available for each category and in aggregate. A summary of the IMD 2007 across England is presented in Figure 3.2 below.

Figure 3.2. Geographic trends for the IMD

[1] The Economic Deprivation Index (EDI) incorporates the income and employment elements of the IMD from 1999 to allow for tracking of deprivation in areas over time.

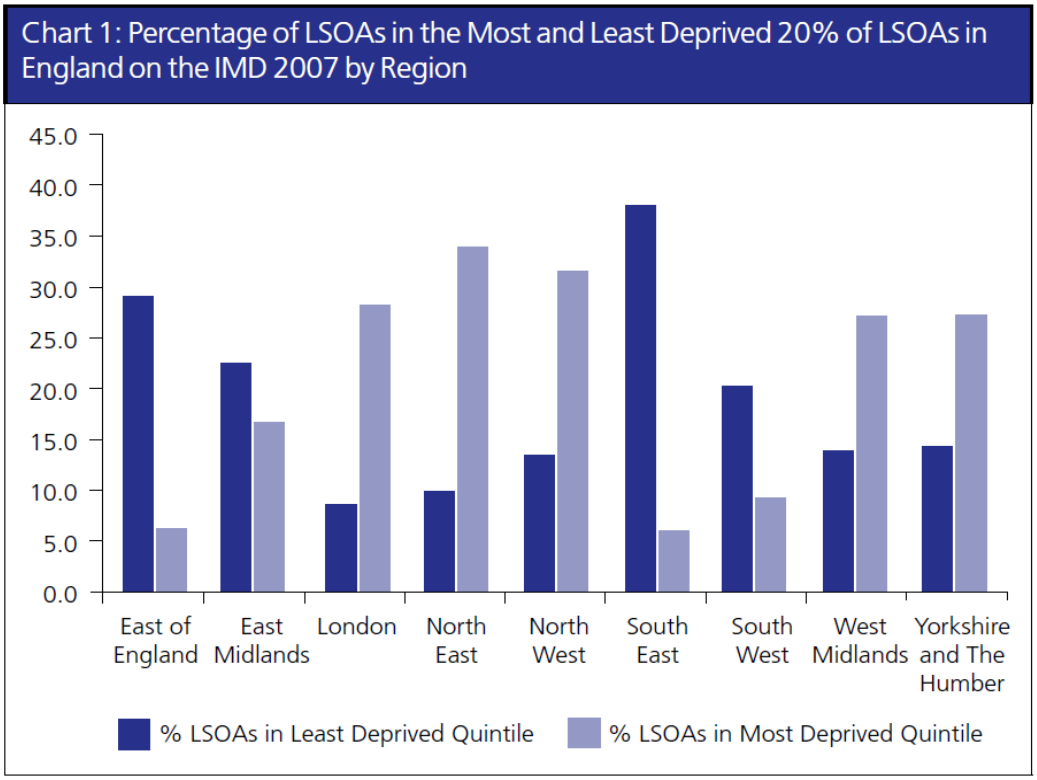


Figure from Communities and Local Government (2007).

As seen above, there is significant variability across England in area deprivation with more than one-third of LSOAs in the North East among the most deprived in England and only 6 percent, respectively, in the East and South East.

The Income Deprivation Affecting Children Index (IDACI) is also used to focus in on the proportion of children ages 0 to 15 years in a given LSOA living in income deprived households.

Earlier this year, Bradshaw and colleagues (Bradshaw, Bloor, Huby, Rhodes, Sinclair, Gibbs, Noble, McLennan, and Wilkinson 2009) created an Index of Child Well-Being (CWI) to complement and expand on the IDACI. The CWI includes seven domains, many of which are quite comparable to the IMD except that they focus exclusively on children or households with children. Figure 3.3 below displays geographic trends for the CWI.

Figure 3.3. Geographic trends for the CWI

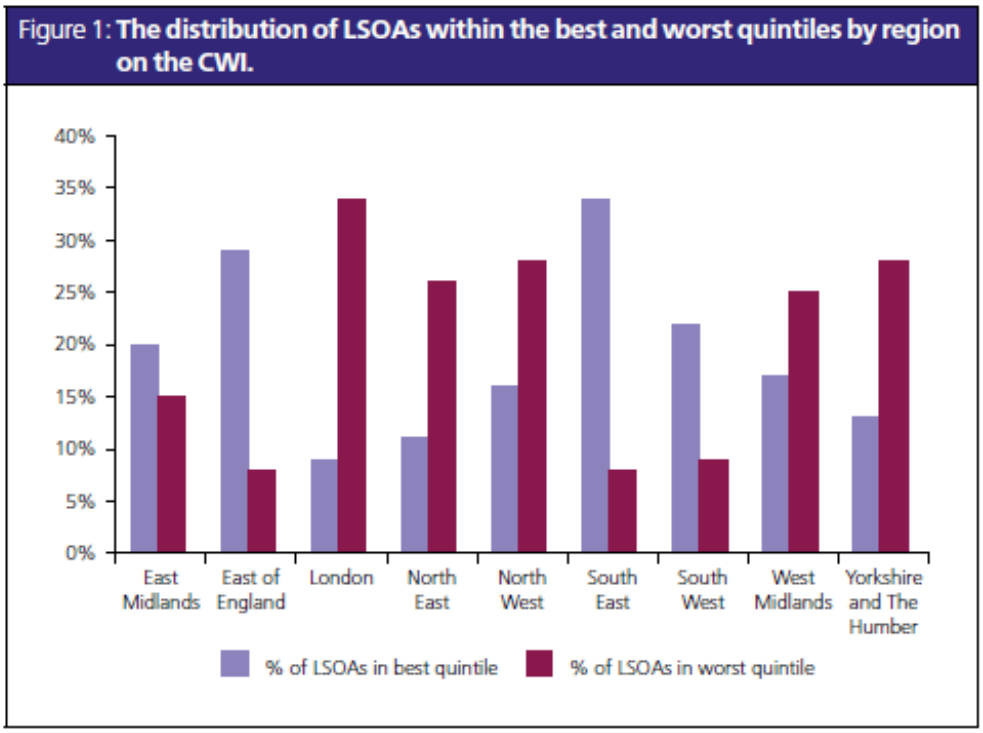


Figure from Bradshaw et al. (2009).

Using this measure, London has the largest proportion of deprived LSOAs.

Subjective features of neighbourhoods

The structural neighbourhood features reviewed above provide a useful starting point for understanding some of the links between the communities young children grow up in and their well-being. The IMD and related assessments, however, tell us very little about why deprived neighbourhoods may be detrimental to their well-being. Further, they do not account for residents' own perceptions of their neighbourhood quality. Assessments of some of the more *subjective features of neighbourhoods* can help fill in these gaps.

Many studies have used resident-reported assessments of different neighbourhood features in addition to Census-based measures (Coulton and Korbin 2007; Leventhal and Brooks-Gunn 2000; Morenoff and Sampson 2008; Sampson, Morenoff, and Gannon-Rowley 2002). These surveys can cover a range of topics including:

- *Facility usage and quality* including early years centres, playgrounds, supermarkets, health centres, banks, schools, libraries
- *Interaction and social cohesion* (e.g., getting along with neighbourhoods, willingness to help neighbours, mutual trust)
- *Informal social control* (e.g., willingness to maintain order if someone is defacing neighbourhood property or if children are skipping school)
- *Presence of disorder* including litter, graffiti, prostitution and public drinking
- Perceptions or experiences of *safety and violence*
- *Neighbourhood quality* (e.g., neighbourhood is a good place to live, good place to raise children).

Other studies have used detailed qualitative interviews or ethnography, which are most useful to understand neighbourhood culture or residents' feeling of belonging in their communities, their fears and stresses, how parents raise children in very dangerous areas and social networks (Barnes, Katz, Korbin, and O'Brien 2006). Although the information garnered from interviews and observation is very useful, it is difficult to conduct detailed qualitative research on a large-scale.

One longitudinal study of neighbourhoods from the US, the Project on Human Development in Chicago Neighborhoods (PHDCN), used structured neighbourhood observations in which over 24,000 neighbourhood blocks were videotaped through the windscreen of a slow-moving vehicle. This methodology was employed to capture various features of physical (e.g., presence of litter, graffiti) and social (e.g., public drinking, prostitution, loitering) disorder present in different neighbourhoods (Sampson and Raudenbush 1999). The findings from the observations could be compared with residents' own reports of disorder.

In general, substantial data are needed for these more subjective assessment to be measured reliably for large-scale analysis (Bradshaw et al. 2009; Coulton and Korbin 2007), which is why indicators such as the IMD do not include these type of constructs.

Links between community and neighbourhood features and children's well-being

In the following sections we provide an overview of some of the key links between neighbourhoods and children's well-being. The largest body of work in this area has examined neighbourhood structural features. Less research has explored how subjective characteristics of neighbourhoods influence young children's well-being.

Structural features of neighbourhoods

While the UK has a comprehensive system to assess neighbourhood-level deprivation, few studies have explored linkages between neighbourhood structural features and children's well-being, even though there exists a wealth of data to do so (Plewis, Smith, Wright, and Cullis 2001). By and large, neighbourhood-level impacts on children's well-being are explored by appending IMD or other Census data onto existing data sources. Clearly in order to do this post codes or other geographic identifiers must be collected from participants, which has implications for the confidentiality of respondents.

The key difficulty with these analyses is that family income (and its correlates) is confounded with neighbourhood deprivation. In other words, poor families are more likely than non-poor families to live in deprived communities. Thus, any analysis examining associations between neighbourhood characteristics and children's outcomes must include a wide range of analytic control variables including families' socio-demographic characteristics and, if data permits, assessments of parenting, the home environment and parent mental health. If neighbourhood-level characteristics are associated with children's well-being even after accounting for all of these other variables, then researchers can feel more

confident that they are indeed capturing neighbourhood-level influences (Brooks-Gunn, Duncan, Klebanov, and Sealand 1993; Leventhal and Brooks-Gunn 2000).

Only a handful of studies have used this analytic method to assess links between neighbourhood characteristics and children's well-being in England. Most studies, both in England and abroad, have examined children's cognitive and behavioural well-being. We review some of this evidence below.

Using data from the 1958 cohort, McCulloch and Joshi (2001) examined associations between neighbourhood deprivation (using the Townsend index, a precursor to the IMD) and vocabulary scores for children aged 4 years and older. Findings revealed that 4- to 5-year-olds residing in the most deprived neighbourhoods had vocabulary scores that were considerably lower than children residing in more affluent neighbourhoods. Young children living in social housing also had low vocabulary scores relative to their peers. A more recent analysis using the same data reported links between deprivation and children's externalising scores, although the youngest children in this sample were 7 years of age (McCulloch 2006). Other research using data from ALSPAC found that local deprivation was linked to 7- to 9-year-old children's IQ, achievement, problem behaviour and fat mass as well as younger children's risk of accidents and conduct problems (Gregg, Propper, and Washbrook 2007; Haynes, Jones, Reading, Daras, and Emond 2008). Finally, a British study of twins documented associations between residence in deprived neighbourhoods and internalising and externalising problems among 2-year-olds (Caspi, Taylor, Moffitt, and Plomin 2000).

A large body of research from the US and Canada in the late 1990s have produced more detailed evidence of the neighbourhood influences on child well-being (for reviews see Leventhal and Brooks-Gunn 2000; Sampson, Morenoff, and Gannon-Rowley 2002). This research has found that neighbourhood influences, though significant, are much smaller than family-level influences.

- Neighbourhood affluence was positively associated with preschool aged children's IQ and vocabulary scores (Brooks-Gunn, Duncan, Klebanov, and Sealand 1993; Chase-Lansdale, Gordon, Brooks-Gunn, and Klebanov 1997; Kohen, Daphna, Brooks-Gunn, Leventhal, and Hertzman 2002), and these associations persisted once children entered formal schooling (Chase-Lansdale, Gordon, Brooks-Gunn, and Klebanov 1997; Duncan, Brooks-Gunn, and Klebanov 1994).
- Associations between neighbourhood poverty (e.g., percent poor, percent on public assistance, percent unemployed and percent female-headed households) and measures of children's cognitive ability and achievement outcomes have also been found (Halpern-Felsher, Connell, Spencer, Aber, Duncan, Clifford, Crichlow, Usinger, Cole, Allen, and Seidman 1997; Kohen et al. 2002).
- Low income and socio-economic status assessed at the neighbourhood-level were associated with children's behaviour problems in these studies as well (Brooks-Gunn, Duncan, Klebanov, and Sealand 1993; Chase-Lansdale, Gordon, Brooks-Gunn, and

Klebanov 1997; Duncan, Brooks-Gunn, and Klebanov 1994; Xue, Yange, Leventhal, Brooks-Gunn, and Earls 2005).

More nuanced analyses examining the timing and duration of residence in affluent neighbourhoods reported that by the age of 5 years, children's IQ scores increased by 2.2 points for each year that they resided in an affluent neighbourhood. Living in an affluent neighbourhood for even 1 year by time children were 5 years of age (compared to never living in an affluent neighbourhood) also yielded a cognitive advantage (Leventhal and Brooks-Gunn 2001). These early neighbourhood influences affected children's achievement when they were 8 years of age. Another longitudinal study suggested that neighbourhood socio-economic status assessed in early childhood was more strongly associated with adolescent externalising behaviours than neighbourhood conditions measured in adolescence, indicating the importance of assessing the neighbourhood conditions in which young children develop (Wheaton and Clarke 2003).

Neighbourhood influences are generally not found for very young children with the exception of air quality on infants' physical health. Evidence from natural experiments in which families experienced substantial improvements in air quality after relocation or the closure of factories has documented declines in infant mortality rates (for a review see Fauth and Brooks-Gunn 2008).

This section reviewed, in brief, evidence documenting neighbourhood influences on children's well-being. From 2 years of age through 8 years of age, residing in a deprived neighbourhood is unfavourably linked to children's cognitive and behavioural well-being. The following section attempts to explain why residence in deprived neighbourhood is so deleterious for children's well-being by examining some of the more subjective features of the neighbourhood environment.

Subjective features of neighbourhoods

Assessments of neighbourhood subjective features including social cohesion, disorder and safety can help explain why young children growing up in deprived neighbourhoods tend to have poorer outcomes than their peers. That is, researchers can link neighbourhood structural characteristics to these subjective features of neighbourhoods to better understand how deprived neighbourhoods are different from non-deprived or affluent neighbourhoods in terms of residents' collective behaviours and experiences. Researchers subsequently link the subjective features of neighbourhoods to health and well-being outcome assessments. Support for these 'neighbourhood process' models has been emerging over the past decade; unfortunately, few studies have used samples of young children. We discuss two of the main hypothesised drivers of neighbourhood influences on young children and summarise existing findings.

Collective efficacy, public order and safety. The degree of mutual trust and solidarity present among neighbours and the willingness of neighbours to work together for the common good are two of the key hypothesized mechanisms driving neighbourhood influences on children's well-being (Sampson, Raudenbush, and Earls 1997). Jointly termed '*collective*

efficacy,' these community relationships are believed to facilitate public order and safety, in part, by monitoring residents' behaviour and are believed to be strongly related to antisocial behaviour and delinquency. Not surprisingly, neighbourhood disadvantage, residential instability, observed neighbourhood disorder and crime are unfavourably associated with collective efficacy (Sampson 1997; Sampson, Raudenbush, and Earls 1997). Table 3.3 below summarises the common survey items used to assess collective efficacy.

Table 3.3. Measuring collective efficacy

Social cohesion and trust

Agreement to five items:

1. This is a close-knit neighbourhood.
2. People around here are willing to help their neighbours.
3. People in this neighbourhood generally don't get along with each other (reverse coded).
4. People in this neighbourhood do not share the same values (reverse coded).
5. People in this neighbourhood can be trusted.

Informal social control

Likelihood that neighbours could be counted on to intervene in five situations:

1. If children were skipping school and hanging out on a street corner.
2. If children were spray-painting graffiti on a local building.
3. If a child was showing disrespect to an adult.
4. If there was a fight in front of your house and someone was being beaten or threatened.
5. If, because of budget cuts, the fire station closest to your home was going to be closed down by the city.

From the PHDCN Community Survey (Sampson, Raudenbush, and Earls 1997).

The research examining links between collective efficacy and children's outcomes has typically focused on young people (often in relation to antisocial behaviour or delinquency); although there is emerging evidence that collective efficacy and related constructs influence younger children's well-being. Two studies using longitudinal data from Canada reported links between various neighbourhood features including cohesion and disorder and children's verbal ability and problem behaviour such that cohesion was associated with fewer behaviour problems (Curtis, Dooley, and Phipps 2004) and disorder lower verbal ability (Kohen et al. 2002). Another study using data from the PHDCN study in Chicago found that residents' perceptions of collective efficacy were associated with a reduction in internalising behaviour problems in middle childhood (Xue et al. 2005).

Related research has examined the impact of children's exposure to violence (outside of the home) on their well-being. Children reared in socio-economically disadvantaged neighbourhoods are likely to be *exposed to violence*, whether by witnessing or personal victimisation (Buka, Stichick, Birdthistle, and Earls 2001; Martinez and Richters 1993; Richters and

Martinez 1993). Children's exposure to violence has been linked to adverse mental health outcomes including behaviour problems, depression, anxiety and oppositional and conduct disorders, as well as school-related problems (Buka, Stichick, Birdthistle, and Earls 2001; Margolin and Gordis 200; Osofsky 1999; Schwab-Stone, Ayers, Kasprow, Voyce, Barone, Shriver, and Weissberg 1995; Schwab-Stone, Chen, Greenberger, Silver, Lichtman, and Voyce 1999).

Neighbourhoods and family stress. Another mechanism by which neighbourhoods may influence children's development indirectly is via its impact on their parents. Expanding the family stress model to the neighbourhood context implies that, similar to family-level poverty, neighbourhood deprivation independently influences parents' health and well-being and family functioning, which subsequently affect their parenting skills.

Ample evidence exists citing the association between neighbourhood conditions, most notably disadvantage, and adults' mental health (see e.g., Hill and Herman-Stahl 2002; Ross 2000; Ross and Mirowsky 2001). Researchers have also documented links between residence in impoverished, unsafe neighbourhoods and the use of harsh and punitive parenting techniques, often cited as a means of keeping children out of harm's way (Burton and Jarrett 2000; Earls, McGuire, and Shay 1994; Hill and Herman-Stahl 2002; Klebanov, Brooks-Gunn, and Duncan 1994; Pinderhughes, Nix, Foster, and Jones 2001). Similarly, several studies have reported that the quality of the home environment accounts for associations between neighbourhood structural characteristics and children's outcomes (Greenberg, Coie, Lengua, and Pinderhughes 1999; Klebanov, Brooks-Gunn, Chase-Lansdale, and Gordon 1997).

A recent study examined the various features of the family stress model in a comprehensive analysis and found that neighbourhood disadvantage was unfavourably associated with neighbourhood cohesion. Low levels of cohesion, in turn, were linked to poor family functioning and maternal depression, which were subsequently associated with parenting behaviours including frequency of literacy activities, consistency and harshness. Finally, these parenting behaviours affected children's verbal ability and problem behaviour at age 5 years (Kohen, Leventhal, Dahinten, and McIntosh 2008). This model held regardless of family economic background. A study using ALSPAC data found that mothers' psychological functioning accounted, in part, for associations between neighbourhood deprivation and a range of children's outcomes in middle childhood including achievement test scores, behaviour problems, physical health and self-esteem (Gregg, Propper, and Washbrook 2007).

Further research is needed with young children – including detailed qualitative studies – to help elucidate why growing up in poor neighbourhoods appears to be detrimental for their well-being. Community social norms and socialisation, as covered by the collective efficacy theory, and family stress are two viable models. Data need to be collected investigating subjective neighbourhood features in addition to area

deprivation characteristics to understand how communities influence young children's well-being.

Community resources and children's well-being

The *quantity, quality and availability of community and institutional resources for children* are another neighbourhood feature that may account for children's well-being. *Early years setting, schools and public play spaces* are among the relevant community resources for young children. Yet, studies focusing specifically on resources within particular communities or neighbourhoods are rare. In this section, we summarise relevant, recent research on childcare, schools and public spaces and their relationship to children's well-being. Given that each of these resources exist within communities and are most likely accessed by community members, we believe they are an important feature of communities and neighbourhoods that should be examined in research.

Early years settings and non-maternal childcare
A large body of extant research documents links between out-of-home childcare experiences and young children's cognitive and social development. While a thorough review of this research is beyond the scope of this report, we outline some of the key findings focusing on several dimensions:

- age of entry into childcare and quantity of childcare
- quality of early years settings
- targeted programmes for disadvantaged children.

Studies in the US have reported links between child care and unfavourable socio-emotional outcomes including aggression and non-compliance among children entering childcare in the first year of life, who then continue care extensively through the early years (for a review see Brady-Smith, Brooks-Gunn, Waldfogel, and Fauth 2001). Evidence from the EPPE project in England validates these findings, reporting that preschool experiences before the age of 2 years were associated with children's behaviour problems at 3 and 5 years of age (Sylva et al. 2004). Other analyses from the Families, Children and Child Care study (FCCC) in England reported that while less than 10 percent of families used non-maternal childcare when children were 3 months of age, by the time children were 10 months nearly half of the sample was in some form of non-maternal care, with nurseries becoming much more common for these slightly older infants (Sylva, Stein, Leach, Barnes, Malmberg, and FCCC-team 2007).

The NICHD study of child care from the US has examined *'quantity' of childcare* during the early years in great depth. Quantity was computed by averaging the number of hours per week children were in non-maternal care over the first 54 months of life. Spending more than 30 hours per week in non-maternal care on average was considered high quantity. The study has reported fairly consistently over the years that spending more hours in care, particularly centre-based group care, was unfavourably associated with young children's obedience and aggression when they were 4 years of age (NICHD Early Child Care Research Network 2005; U.S. Department of Health and Human Services 2006). The link between quantity and externalising behaviour attenuated by the time children were 7 to 8 years of

age in NICHD, but some other unfavourable associations appeared including poor work habits in school and social skills (NICHD Early Child Care Research Network 2005). EPPE data revealed that attending an early years setting full-time led to no advantaged relative to attending part-time, yet total duration in preschool (i.e., number of months attended) was linked to children's intellectual attainment and social skills through Key Stage 1 (Sylva et al. 2008).

Perhaps more important than child age and quantity of care is the *quality* of non-maternal care that young children receive. Researchers generally differentiate between two aspects of quality:

1. *structural quality*: the aspects of the environment that are regulated by the government, such as child-to-adult ratios, group size and educational requirements of teachers
2. *process quality*: children's experiences with caregivers and peers as well as the activities and language stimulation provided in the child care environment.

Assessing quality of childcare requires data collection in early years settings. *Structural quality* is generally measured by administering surveys to caregivers or senior staff. The features of process quality are most accurately assessed through observation instruments such as the *Early Childhood Environment Rating Scale – Revised* (ECERS-R) (Harms, Clifford, and Cryer 1998) or its extended version used in the EPPE study, which incorporated some of the key criteria of the Foundation Stage curriculum. A summary of this assessment is in Table 3.4 below.

Table 3.4. Early Childhood Rating Scale – Revised

This scale assesses global quality in child care settings and is meant to be used on groups in childcare centres serving children aged 2.5 to 5 years. Items are scored on a 7-point scale. Numbered indicators outline the specific requirements for each item at four levels: 1 (inadequate), 3 (minimal), 5 (good) and 7 (excellent). The trained observer begins at level 1 and scores each indicator 'yes', 'no' or 'NA'. All indicators must be passed at each level to score at or above that level. The ECERS-R assesses the following scales:

- **space and furnishings (8 items)**
- **personal care routines (6 items)**
- **language-reasoning (4 items)**
- **activities (10 items)**
- **interaction (5 items)**
- **programme structure (4 items)**
- **parents and staff (6 items)**

The ECERS-E used in the EPPE study also includes the following four scales, created to account for the Foundation Stage curriculum requirements:

- **literacy (6 items)**
- **mathematics (4 items)**
- **science (5 items)**
- **diversity (3 items)**

There is also the Infant/Toddler Environment Rating Scale (ITERS) and the Family Child Care Environment Rating Scale (FCCERS) to assess global quality in settings for very young children and in childminders' homes, respectively.

The NICHD study used an alternate assessment that included minute-by-minute observations to capture some of the more affective features of caregiver-child interactions. A full guide to childcare quality assessments is available from Child Trends (Child Trends 2007). The aim of all of the measures is to capture the objects, activities and interactions that occur on a day-to-day basis in settings that promote or inhibit children's well-being.

By and large, structural quality is believed to promote process quality. That is, caregivers with more training, qualifications and fewer children to mind are believed to be better able to provide sensitive and stimulating care. Yet, there is mixed evidence regarding the relationship between structural and process quality.

Indeed, a review of seven US childcare studies reported great diversity across the studies in terms of associations between the educational attainment of early years providers and their provision of high-quality care (Early, Maxwell, Burchinal, Alva, Bender, Bryant, Cai, Clifford, banks, Griffin, Henry, Howes, Iriondo-Perez, Jeon, Mashburn, Peisner-Feinberg, Pianta, Vandergrift, and Zill 2007). Children's well-being was not necessarily dependent on whether or not teachers' had a university degree. In another study using the NICHD data, caregiver training and child-to-staff ratios were both associated with caregivers' relationship with children including their sensitivity and stimulation of cognitive development. These caregiver behaviours were, in turn, linked to 4-year-olds' cognitive competence (NICHD Early Child Care Research Network 2002). In EPPE, the data suggest that staff qualifications – particularly for centre managers – were linked to process quality and children's developmental progress (Sylva et al. 2004). The conclusion from this work is that it is not entirely clear if and how child care structural quality affects children's well-being. It is likely that when superior provision results from greater regulatory control, impacts on child well-being will be seen.

In the most recent UNICEF report card examining early childhood education and care, the UK met all of the benchmarks focusing on structural quality including (UNICEF 2008):

- 80 percent of childcare staff trained
- 50 percent of staff in accredited early education services tertiary educated with relevant qualification
- minimum staff-to-children ratio of 1:15 in preschool education.

INSPECTION FRAMEWORK FOR REGISTERED EARLY YEARS SETTINGS DELIVERING THE EYFS

- ***Description*** of the setting
- ***Overall effectiveness*** of the provision including meeting the needs of children, promoting inclusive practice and maintaining continuous improvement
- Steps needed to further ***improve provision***
- ***Leadership and management*** of the early years including the effectiveness of the self-evaluation, how well the setting works in partnership with parents and how well children are safeguarded

- ***Quality and standards*** of early years provision including how effectively children are helped to learn and develop and how effectively children's welfare is promoted

The findings concerning *process quality* are quite consistent. Many studies of childcare studies have demonstrated that utilization of high-quality daycare (as determined by observational assessments) predicted more favourable cognitive outcomes for children during the toddler, preschool and even through the primary school years (Burchinal, Roberts, Riggins, Zeisel, Neebe, and Bryant 2000; Helburn 1999; Howes 1990; Howes and Smith 1995; Love, Harrison, Sagi-Schwartz, Van IJzendoorn, Ross, Ungerer, Raikes, Brady-Smith, Boller, Brooks-Gunn, Constantine, Kisker, Paulsell, and Chazan-Cohen 2003). While the EPPE study from England also reported associations between high-quality preschool experiences and children's social and behavioural development, the findings from NICHD in the US were somewhat less clear cut. Quality was generally linked to children's social skills, but not necessarily their behaviour, and regardless of quality, quantity of care still predicted children's externalising behaviour problems (NICHD Early Child Care Research Network 2006).

Qualitative case studies in 12 centres for the EPPE project identified seven features found in high-quality care settings including:

1. sustained shared thinking between children and adults
2. balance of child- and adult-initiated activities
3. caregiver knowledge and understanding of the curriculum
4. caregiver use of teaching and play to promote learning
5. caregiver qualifications
6. parental engagement and involvement in children's learning
7. children encouraged to discuss and work through their conflicts.

Both EPPE and NICHD have followed children into primary school. EPPE found that quality remained a significant predictor of children's reading and math attainment and their pro-social behaviour at the end of Key Stage 2. On the other hand, children who attended poor-quality settings did not see sustained influences. Further, analyses revealed that for children with poor early years' home environments, high-quality preschool buffered them against risk of poor outcomes (Sylva et al. 2008). In NICHD, childcare quality in early childhood was favourably associated with 7- to 8-year-olds' reading, maths and memory tests (NICHD Early Child Care Research Network 2006).

According to data from the second sweep of MCS when children were 3 years of age:

- **29 percent** of full-time working mothers used formal non-maternal care including nurseries, crèches, nursery schools or playgroups
- **24 percent** of part-time working mothers used formal non-maternal care
- **54 percent** of non-working mothers used formal non-maternal care.

In general, children with one parent in the top education, occupation and income groups were more likely to attend formal care settings.

Finally, we say a few words about targeted early years programmes for disadvantaged children. Research from EPPE suggests that high-quality preschool settings offer an extra 'boost' to disadvantaged children particularly in terms of their math attainment once they enter formal schooling. The benefits of targeted early intervention is a topic over which many scholars disagree due, in part, because findings have been inconsistent across studies - even if from a moral perspective most child development advocates believe that these programmes are valuable.

Many studies from the US have reported favourable, yet modest impacts of targeted early intervention programmes on poor children's well-being (for reviews see Brooks-Gunn 2003; Karoly, Kilburn, and Cannon 2005). Programmes that included centre-based care (i.e., either exclusively centre-based or a mix of centre- and home-based care) have garnered the strongest effects. Generalising over a wide body of research, results have suggested that high-quality early interventions have the potential to alter young children's cognitive and socio-emotional well-being, but that favourable impacts may fade over time. Some of the most frequently cited findings from the US studies found lasting impacts of early interventions into adulthood (Campbell, Ramey, Pungello, Sparling, and Miller-Johnson 2002; Schweinhart, Montie, Xiang, Barnett, Belfield, and Nores 2005), yet these interventions were quite expensive to implement, small in scope and the findings across the two studies are not entirely consistent – making it difficult to generalise to the findings.

In the UK, evidence from the Sure Start Evaluation has been mixed. An area-based intervention for young children and families residing in deprived communities, Sure Start Local Partnerships (SSLP) were initially set-up between 1999 and 2003 to flexibly serve the needs of local communities and thus did not have a prescribed set of services. Findings from the initial evaluation were fairly unimpressive – with the most disadvantaged children living in SSLP areas actually displaying poorer outcomes in some domains than children in non-SSLP areas (Belsky, Melhuish, Barnes, Leyland, and Romaniuk 2006).

Since 2004, SSLPs are now part of Sure Start Children's Centres, which includes a clearer specification of services, an increased focus on child well-being and service intensity in line with level of family disadvantage. More recent evidence focusing on 3-year-old children found that compared with MCS children residing in similarly deprived non-SSLP areas, children in Sure Start areas had better social behaviour and exhibited increased independence (Melhuish, Belsky, Leyland, Barnes, and National Evaluation of Sure Start Research Team 2008). Some favourable impacts on parenting and the home environment were also reported. Yet, no differences in verbal ability for the two samples of children emerged.

RECENT TRENDS IN EARLY YEARS EDUCATION IN THE UK

- near universal take-up of the free part-time early learning or childcare entitlement for 3- to 4-year-olds
- free early learning and childcare offer to 2-year-olds in the most deprived communities

- almost 2.3 million children use one of almost 3,000 Sure Start Children's Centres
- introduction of specialist graduate qualification for early years practitioners
- 2006 Childcare Act gave Local Authorities a duty to ensure parents' child care needs are met locally
- roll of the Early Years Foundation Stage, the new statutory framework for early years providers to help children meet the five *Every Child Matters* outcomes

The whole of these findings suggest that early years educational settings can yield very favourable impacts on young children. Before entering primary school, high-quality childcare where well-trained professionals interact with children and promote both play and more structured learning has been associated with long-term benefits to their cognitive and social well-being. Findings for externalising behaviours are more mixed and may depend on how early and for how much time children are in non-maternal care prior to school entry. Targeted interventions aimed at economically disadvantaged children are promising as well, but are limited by the difficulty of studying impacts outside of experimental designs. To some extent, the EYFS will help us to understand children's development before going off to primary school, but it tells us very little about the quality of the early years environment in facilitating young children's development. Even though some of the findings on non-maternal care in the early years is mixed, the evidence base is large enough to conclude that *high-quality* early years should be a part of children's experience and may be most important for disadvantaged children.

Schools

Once children enter primary school, the school environment represents a prominent community institutional resource that likely influences their well-being. Several recent reviews have identified the features of schools that are most important for children's learning. These features generally align around the characteristics and behaviours of teachers and classrooms (Halle et al. 2008; Loeb, Rouse, and Shorris 2007; Mayer and Ralph 2008). For teachers, the following have been identified as important to children's outcomes:

- level of education
- professional development
- academic focus
- communication with parents (including regular meetings)
- assignment (i.e., teaching courses they are trained to teach)
- teaching experience.

Professional development may be particularly important to teachers' effectiveness as it enables teachers with varying academic and practical skill levels to obtain further training to develop knowledge (Loeb, Rouse, and Shorris 2007). Research suggests that most professional development is of little benefit to teaching quality, and that development should:

- involve a time commitment (i.e., 1 day programmes are generally not worthwhile)
- contain targeted content or subject-specific instruction
- be linked to goals and curriculum of school.

Within classrooms, some basic structural characteristics have been identified as important such as class size and the availability of learning materials (including technology), but most classroom features focus on the content of the curriculum and how information is taught to children. Content should be moderately (and appropriately) challenging, and children should be encouraged to focus their efforts on mastery and skill development rather than honing in on targets. This not only broadens children's learning, but also may be important for children's beliefs regarding their learning vis-à-vis self-efficacy. As much as possible, teachers should aim to develop and assign tasks that are meaningful and relevant for pupils and should structure their feedback to be informational not just evaluative (Mayer and Ralph 2008; Urdan and Turner 2005).

While some of the basic teacher characteristics are quite easy to assess using surveys, some of the classroom behaviours are better captured via observation.

The EPPE project, which we have mentioned frequently throughout this review, examined teachers' classroom practices for a subsample of children in 125 primary schools when children were in Year 5 (Sylva et al. 2008). Although the children in this sub-study are slightly older than our focus here, the findings from these detailed observations are quite informative. See Table 3.5 for a summary of the classroom observation assessment.

Table 3.5. Classroom Observation System for Fifth Grade (COS-5)

The EPPE study used the COS-5 to examine classroom characteristics. The COS-5 consists of two 10-minute coding systems.

For the **Frequency of Behaviour Coding System** a trained observer codes the behaviours of a target child and his/her teacher over 10 60-second segments. The focus is on five general areas of the child's classroom behaviour and experience:

1. classroom setting the child is working in (e.g., whole class, large group)
2. content of the child's activity including subject area
3. teacher's interaction with the child
4. child's academic behaviour including type and level of engagement
5. child's social behaviour

For the **Measures of Quality Coding System** a trained observer codes more global child and classroom characteristics including:

- child positive affect
- child self-reliance
- child sociability
- child activity
- richness of instructional methods
- classroom chaos
- teacher detachment
- teacher productive use of instructional time

The study identified a measure of overall teaching quality, which was comprised of the following:

1. *quality of pedagogy*, which includes the richness of instructional method, positive classroom climate, productive use of time, teacher feedback, teacher sensitivity and engagement
2. *disorganisation*, a negative indicator, focuses on the behavioural climate of the classroom including disruptiveness, chaos and negative climate
3. *child positivity* highlights children's cooperation and self-reliance and child-teacher relationships
4. *positive engagement* examines children's positive affect and activity level
5. *attention and control* takes into account children's attention and classroom control.

Interestingly, the study also used a teacher survey and Ofsted inspection data. Findings revealed that while teaching quality was a smaller predictor of children's reading and maths achievement than the HLE and mothers' educational attainment, it was linked to their outcomes.

- Pedagogy and attention and control were associated with children's maths achievement.
- Disorganisation was unfavourably linked to their maths and reading scores and children's hyperactivity.
- Positivity was linked to reading.

The overall influence of teaching quality on children's well-being was as large or larger (in the case of reading) as Ofsted judgments.

WHAT DO OTSTED INSPECTORS REPORT ON?

- overall effectiveness of the school
- achievements and standards
- quality of provision including teaching and learning; curriculum and other activities; and care, guidance and support
- leadership and management
- extent to which schools enable learners to be healthy and stay safe
- how well learners enjoy their education
- extent to which learners make a positive contribution
- how well learners develop workplace and other skills that will contribute to their future economic well-being.

More recently, schools have had greater responsibility for providing activities and opportunities to enrich and enhance the lives of children and their families and contribute to community sustainability and cohesion. One aspect of this expansion of the school role is through extended schools. Extended schools offer a range of services and activities from 8am to 6pm 48 weeks per year. Although there is not single model, the core offer of extended schools includes:

- before/after-school leisure and enrichment activities
- childcare
- family and parent support for children's learning
- targeted specialist services
- other agency (e.g., health, youth or social services) provision
- community access to facilities (e.g., ICT, adult learning, sports).

A recent survey revealed that childcare and activities are the most widely used components of extended schools, but there was some evidence that students from more deprived backgrounds were not taking up activities as much as their peers (Wallace, Smith, Pye, Crouch, Ziff, and Burston 2009).

Extended schools are quite important in today's policy environment because they enable parents to work, learn and advance themselves, which is crucial to children's well-being (as reviewed previously) whilst simultaneously providing supervised, structured space and activities for school-aged children. In theory, extended schools offer children access to positive and supportive relations with people and institutions, opportunities for skill-building and community engagement (Roth, Brooks-Gunn, Murray, and Foster 1998). Evidence from the US is relatively mixed regarding the influences of after-school programmes on children – generally due to poor study designs in which to assess these influences (Granger 2008), although the findings suggest that the degree to which children are engaged in structured, supervised activities may influence the benefits of these programmes. Future evaluations in England are needed to build the evidence base.

Public play spaces

Following from the discussion of extended schools above, children need places where they can spend their free time. As children age and become increasingly mobile, their use of community spaces likely increases. Although during early childhood, children's play is generally supervised by adults, community provision of safe play spaces is vital to children's well-being.

Several recent research reviews and reports have outlined the importance of play to young children's well-being (Ginsburg and Committee on Communications and and the Committee on Psychosocial Aspects of Child and Family Health 2007; Huby and Bradshaw 2006; Lester and Russell 2008; Sutterby and Frost 2006). *Physically*, play provides exercise and gives children's opportunities to gain gross motor and coordination skills. *Mentally,* play gives children occasion to take in diverse stimuli and information. It enhances children's problem-solving skills, which boosts their confidence to face future challenges and helps them feel a sense of mastery. Active play can also help children cope with stress and anxiety. *Socially,* play fosters collaboration and socialisation and gives children an opportunity to use language.

In recent years, outdoor play in informal play spaces such as streets or open lots has declined considerably (Jackson and Tester 2008; Lester and Russell 2008; Sutterby and Frost 2006). Within communities, *formal play spaces such as public parks, playgrounds and schoolyards* are often the main outlets for children's play. Not surprisingly, access to such areas is linked to children's physical activity levels (Gomez, Johnson, Selva, and Sallis 2004; Sutterby and Frost 2006). Outdoor play environments need to be constructed to encourage risk-taking behaviour. Children like colour and diversity in their play environments and 'secret' play spaces are of particular importance (Huby and Bradshaw 2006; Sutterby and Frost 2006). Research suggests that natural environments afford children more novelty and

unpredictability in their play, which increases their fitness levels and improves their balance and coordination relative to traditional asphalt playgrounds (Fjortoft 2004).

Perhaps the most important implication to conclude this section on communities and neighbourhoods is that of safety from violence. Several studies have explored the use of public play spaces in 'dangerous' neighbourhoods. One study reported that neighbourhood violence and perceptions of safety were associated with the frequency outdoor physical activity for girls in particular (Gomez, Johnson, Selva, and Sallis 2004). Another study found that physical activity increased in one deprived neighbourhoods after the introduction of a monitored playground relative to children residing in a comparable neighbourhood with safe outdoor play space (Farley, Meriwether, Baker, Watkins, Johnson, and Webber 2007).

Clearly where children live has implications for the type of outdoor play space they have access to. Given the importance of play to children's development, attention needs to be given to ensuring that adequate outdoor space – preferably in natural settings – is made available for play. Particularly in these times where obesity is a growing concern in England, children need to rediscover the outdoors at an early age.

Conclusion

This section provided an overview of communities and neighbourhoods as a key context of children's well-being. Focusing first on neighbourhood-level deprivation, we detailed some of the linkages between growing up in a poor neighbourhood and children's well-being. While family and neighbourhood poverty generally go hand in hand, the neighbourhoods children grow up in do have an independent influence on young children's well-being. While neighbourhoods are perhaps more important for young people's outcomes, early well-being often sets children on a path for later well-being.

Subsequently, we looked at some of the relationships and behaviours that occur within communities that may influence children's well-being. The strongest support exists for the collective efficacy model, which posits that norms and appropriate behaviour is often determined at the community level and the ways in which residents' informally monitor the neighbourhood has implications for children's well-being.

Finally, we examined some of the key neighbourhood-based resources for children's development including childcare centres, schools and public play spaces. We highlighted some of the key features of these resources and how they have been shown to affect young children. Accounting for children's well-being must include consideration of the environments in which they grow and develop.

Section summary: Features of the community and neighbourhood

- More distal that the family and home environment, the neighbourhoods and communities in which children grow up influence their well-being.

- Assessment of the neighbourhood context includes *structural* characteristics such as level of deprivation in a given region, as well as *subjective* neighbourhood features such as residents' perceptions of trust, cohesion and safety and the quality and quantity of community resources.
- Neighbourhood structural characteristics are generally measured by Census data, benefit and tax records, hospital admissions, educational data, crime records and the like.
- Studies – most from the US – have demonstrated links between neighbourhood structural characteristics and children's well-being, above and beyond the influence of family economic status.
- Neighbourhood subjective features are usually assessed from resident-report surveys, observation or qualitative data.
- Research examining links between neighbourhood subjective features and young children's well-being are scant; however, the degree of mutual trust and solidarity among neighbours and their willingness to work together for the common good – so called 'collective efficacy' – appears to be a powerful neighbourhood process affecting families' well-being.
- Community resources affecting children's well-being include early years settings, schools and public play spaces.
- Assessments of the quality of these settings are usually linked with children's outcomes.
- Childcare quality includes both *structural* components such as staff qualifications or ratios as well as *process* quality, which highlights the relationships between providers and children.
- Research suggests that high *quantity* of non-maternal care in the early years may be deleterious for children's well-being, but that high *quality* care is generally beneficial.
- School quality including teacher characteristics and what occurs in the classroom affect children's well-being.
- Observation methods have revealed that the quality of teaching pedagogy, the level of organisation in classrooms and teachers' positive attitude all affect children's well-being.
- Extended schools are gaining increasing attention, but more research is needed vis-à-vis assessing the quality of these programmes.
- Play has massive benefits for children's well-being.
- Public play spaces need to foster risk-taking, incorporate natural settings and provide freedom from danger.

4. Conclusion: Bringing it all together

As detailed throughout this review, young children's well-being focuses on the internal assets that they possess (e.g., physical health, psychological development) that support their early development and pave the way for future well-becoming. Also important are factors external to children – the contexts that support and impact upon children's development including families, schools and communities (Ben-Arieh 2008a).

This review aimed to provide a thorough overview of the key domains and contexts of young children's well-being from birth to 8 years of age. Focusing on recent research primarily from the past 5 years, the report was divided into two principal sections: one focusing on the key domains of young children's well-being and the second on the important contexts that influence their development.

The key domains of young children's well-being include:

- physical well-being
- mental health, emotional and social well-being
- cognitive and language development and school performance
- beliefs.

Each domain was defined and key indicators were summarised. For each, we highlighted the typical format and content of measures used and documented some key trends in England. We summarise some of the main findings below.

- *Physical* well-being indicators capture physical health and ill-health, as well as healthy lifestyle and behaviour. Physical well-being indicators are generally assessed via formal records (e.g., birth, death, medical) or parent-report survey data.
- In the past, child survival was the key focus of child well-being indicators. While it remains critically important, there is increasing demand for more inclusive well-being indicators, such as items related to children's lifestyle including diet and nutrition, and physical activity and exercise.
- Children's *mental health and emotional* well-being is harder to capture on a large-scale than children's physical well-being. Most assessments of young children's internal states use their observable 'problem' behaviour to proxy how children feel inside. Children generally do not report on their own emotional well-being during the early years.
- Children's *social* well-being indicators focus on identification of 'positive' behaviours including friendships and pro-social behaviour.
- Emotion regulation – the ability of children to modulate their emotions – is increasingly recognised as an important aspect of their well-being that underpins many aspects of development. Emotion regulation is usually gauged via observation.
- The *cognitive* domain of well-being highlights children's ability to communicate and comprehend information, their general knowledge

about the world and their problem solving ability. Many aspects of children's cognitive development are gauged via standardised assessments that can also be used to detect early signs of disability or delay.

- Many preschool assessments of child development focus on 'school readiness' – the skills and behaviours children need to succeed in school. In recent years, early literacy and numeracy have become very important aspects of school readiness.
- Once children enter school, their school performance and achievement as well as their school engagement, attendance and participation become important.
- The more subjective aspects of the cognitive domain, such as engagement usually rely on child- or teacher-reports or even classroom observations.
- Children's *beliefs* about themselves such as self-esteem or self-efficacy tend to be assessed via self-report once children reach middle childhood. However, using pictorial self-report assessments, research suggests that children as young as 4 years can report on very basic aspects of the self.
- There is increasing demand for more subjective measures of well-being. Trying to gauge children's subjective assessments of their well-being is quite difficult, as typical survey formats and self-report forms may not be interpretable to young children.

Second, we looked at several of the most important contexts in which young children develop. Looking at children's development and well-being in context is certainly not new; however, accurate and consistent measurement of these environmental features is not consistently included when considering children's well-being. Our review focused on three contexts in particular:

- family economic status and resources
- caregiving and the home environment
- features of the community and neighbourhood.

These three contexts were included in the report because the literature review revealed strong links between each and children's well-being, and furthermore that these contexts input into children's lives on a daily basis. Some of the main findings are highlighted below.

- Income poverty is the most common assessment of families' economic well-being.
- The links between childhood poverty and well-being are well documented and strong – particularly when children experience chronic poverty early in their lives. It is difficult to discuss well-being without considering children's socio-economic backgrounds.
- Poverty status is strongly linked with lone parenthood, parent educational attainment, unemployment/inactivity and teenage parenthood. These family characteristics, particularly parent educational attainment, are also associated with children's well-being.
- Families' perceptions of deprivation do not always directly align with their incomes. Studies have increasingly included various subjective assessments of families' economic status and perceived deprivation.

- Going further inside of the family environment, parenting behaviour and parent-child relations make a strong impact on children's well-being.
- Beginning prior to birth, parents' actions and health-related behaviours affect their unborn children.
- While self-report assessments of parenting exist, observation methods may be more reliable to capture various parenting dimensions such as sensitivity, warmth, responsiveness, stimulation, intrusiveness, harshness and detachment.
- Learning materials and their stimulation of children's development in the home, usually assessed via parent-report and observation, are important aspects of parenting that affect children's well-being. Indeed, home learning environments assessed prior to the start of school remain predictors of children's outcomes into middle childhood.
- Although somewhat distal, the conditions of the homes in which children live, particularly overcrowding, can also affect their development.
- Moving outside of the home, the neighbourhoods in which are reared can also influence their well-being.
- Neighbourhoods are usually assessed in two ways. The first focuses on the 'structural' characteristics of neighbourhoods, which include aggregate poverty levels, employment and unemployment, crime statistics and educational attainment across a given region. These measures are usually computed using Census data or government records. The second highlight residents' subjective views (using surveys) of neighbourhood quality including feelings of safety, danger and disorder, and trust and solidarity among neighbours.
- A growing body of research suggests that neighbourhood features – structural and subjective – influence children's well-being above and beyond families' economic circumstances.
- Another important aspect of community life is the available resources for children and families including early years settings, schools and public play spaces.
- We reviewed the features of each that appear to be important for children's well-being. By and large, measurement of these features incorporates surveys with teachers and child care providers and observations.

As demonstrated throughout this review, many well-validated measures exist to assess various aspects of young children's well-being and the contexts in which they develop. While some features of well-being are captured en masse via formal government systems (e.g., infant mortality, key stage achievement), gauging other aspects is reliant on survey data from various research studies. Given the various forms of assessment and the diversity of current data, it can be difficult to describe and measure 'well-being' as a single concept for young children across England.

According to our review of the extant research, the following are the key priorities in assessing the domains of young children's well-being:

- *comprehensive:* cover broad domains *and* contexts of development for all age groups

- *reliable:* yield valid and reliable measurement across different subgroups and localities
- *positive:* encompass positive indicators in addition to negative indicators
- *regular:* measure change over time.

Regarding the above, many of the references cited in this report demonstrate that experts and professionals are aware of the holistic and comprehensive nature of young children's well-being. Data collected need to represent this comprehensive viewpoint, with inclusion of both the different domains and contexts of well-being. To accurately assess well-being across a given area or region or even nationally also requires robust and representative samples of children. It may be that investigators and funders need to give further consideration to the uses of their data in the design phase to ensure that children's well-being can be comprehensively assessed, especially as measuring and monitoring children's well-being is increasingly important as a result of accountability-based public policy.

Well-being ultimately focuses on maximising children's potential, which is not an easy construct to measure. Beyond being difficult to gauge, it may be even more difficult to identify the 'cut off scores' that are indicative of well-being (Davidson, Rosenberg, and Moore 2003). Going further, several recent reports (Aked, Marks, Cordon, and Thompson 2008; Moore, Lippman, and Brown 2004) call for alternate assessments of well-being (all focused on positive features) including children's civic engagement, happiness and optimism. To enable measurement of these potentially important domains of well-being, further study is needed of how to reliably capture children's own perceptions and experiences on some of these more abstract notions. If valid measures were developed, this would enable policymakers to track positive aspects of children's well-being as well as some of the more traditional negative indicators.

Throughout the report, instances of observation-based measurements have been described for the various domains and contexts. While expensive and time consuming, these assessments provide valuable additional detail to survey measures and can overcome difficulties related to young children's interpretation and understanding of survey questions. It would be useful to compare findings based on observation and survey methods to better understand when survey methods are and are not able to capture the necessary elements of well-being or contexts.

Finally, as stressed by this report, children's development does not occur in a vacuum. It is crucial that the contexts and environments in which children grow up are accounted for – or are even the focus of – reports on children's well-being. Further consideration also needs to be given to how measures of well-being can be adapted to gauge a child's well-being and development from birth to 18. These considerations are important as measuring and monitoring robust outcomes become increasingly important in public policy.

5. References

Achenbach, TM. and LA. Rescorla. 2000. *Manual for ASEBA preschool forms and profiles*. Burlington, VT: University of Vermont, Research Center for Children, Youth and Families.

—. 2001. *Manual for ASEBA school-age forms and profiles*. Burlington, VT: University of Vermont, Research Center for Children, Youth, and Families.

Ainsworth, Mary. 1964. "Patterns of attachment behavior shown by the infant in interaction with his mother." *Merrill-Palmer Quarterly* 10:51-58.

Aked, Jody, Nic Marks, Corrina Cordon, and Sam Thompson. 2008. "Connect, be active, take notice, keep learning, give: Five ways to well-being." Centre for Well-being, New Economics Foundation, London.

Alexander, Karl L, Doris R Entwisle, and Susan L Dauber. 1993. "First-grade classroom behavior: Its short- and long-term consequences for school performance." *Child Development* 64:801-814.

Bandura, Albert. 1977. "Self-efficacy: toward a unified theory of behavioral change." *Psychological Review* 84:191-215.

Barnes, Jacqueline, Ilan Katz, Jill E Korbin, and Margaret O'Brien. 2006. *Children and families in communities: Theory, research, policy and practice*. Chichester, West Sussex: John Wiley and Sons Ltd.

Baumrind, Diana. 1966. "Effects of authoritative control on child behavior." *Child Development* 37:887-907.

Bayley, Nancy. 1993. *Bayley Scales of Infant Development*. San Antonio, TX: Psychological Corporation.

Belsky, Jay. 1999. "Interactional and contextual determinants of attachment security." Pp. 249-264 in *Handbook of attachment theory and research*, edited by J. Cassidy and P. Shaver. New York: Guilford.

Belsky, Jay and R M Pasco Fearon. 2002. "Early attachment security, subsequent maternal sensitivity, and later child development: Does continuity in development depend upon continuity of caregiving?" *Attachment and Human Development* 4:361-387.

Belsky, Jay, Edward Melhuish, Jacqueline Barnes, Alastair H Leyland, and Helena Romaniuk. 2006. "Effects of Sure Start local programmes on children and families: Early findings from a quasi-experimental, cross sectional study." *British Medical Journal* 332:1476.

Ben-Arieh, Asher. 2008a. "The child indicators movement: Past, present, and future." *Child Indicators Research* 1:3-16.

—. 2008b. "Indicators and indices of children's well-being: Towards a more policy-oriented perspective." *European Journal of Education* 43:37-50.

Beresford, Bryony, Tricia Sloper, and Jonathan Bradshaw. 2005. "Physical health." Pp. 65-107 in *The well-being of children in the UK*, edited by J. Bradshaw and E. Mayhew. London: Save the Children.

Bergman, K, P Sarkar, V Glover, and T G O'Connor. 2008. "Quality of child–parent attachment moderates the impact of antenatal stress on child fearfulness." *Journal of Child Psychology and Psychiatry* 49:1089-1098.

Berlin, Lisa J and J Cassidy. 2000. "Understanding parenting: Contributions of attachment theory and research." Pp. 133-170 in *The World Alliance for Infant Mental Health handbook of infant mental health*, vol. 3, *Parenting and child care*, edited by J. Osofsky and H. E. Fitzgerald. New York: John Wiley and Sons.

Blanden, Jo, Paul Gregg, and Lindsey Macmillan. 2006. "Accounting for intergenerational income persistence: Non-cognitive skills, ability and education." Centre for the Economics of Education, London School of Economics, London.

Blau, David M. 1999. "The effect of income on child development." *The Review of Economics and Statistics* 81:261-276.

Bolea, Angelo S, Donald W Felker, and Margaret D Barnes. 1971. "A pictorial self-concept scale for children in K-4." *Journal of Educational Measurement* 8:223-224.

Bracken, B A. 1998. *Bracken Basic Concept Scale - Revised*. San Antonio, TX: The Psychological Corporation.

Bradley, Robert H, Bettye M Caldwell, Stephen L Rock, Kathryn E Barnard, Carol Gray, Mary A Hammond, Sandra Mitchell, Linda Siegel, Craig T Ramey, and Allen W Gottfried. 1989. "Home environment and cognitive development in the first 3 years of life: A collaborative study involving six sites and three ethnic groups in North America." *Developmental Psychology* 25:217-235.

Bradshaw, Jonathan. 2005. "Child poverty and deprivation." Pp. 35-64 in *The well-being of children in the UK*, edited by J. Bradshaw and E. Mayhew. London: Save the Children.

—. 2006. "How has the child poverty rate and composition changed?" Joseph Rowntree Foundation, York.

—. 2007. "Child poverty and well-being." *Social and Public Policy Review* 1.

Bradshaw, Jonathan, Karen Bloor, Meg Huby, David Rhodes, Ian Sinclair, Ian Gibbs, Michael Noble, David McLennan, and Katie Wilkinson. 2009. "Local index of child well-being: Summary report." Communities and Local Government, London.

Bradshaw, Jonathan, Petra Holelscher, and Dominic Richardson. 2007. "Comparing Child Well-being in OECD Countries: Concepts and Methods, Innocenti Working Paper No. 2006-3." UNICEF Innocenti Research Centre, Florence.

Bradshaw, Jonathan and John Holmes. 2008. "Family poverty assessed at three years old." Centre for Longitudinal Studies, Institute of Education, University of London, London.

Bradshaw, Jonathan and Emese Mayhew. 2005. "Introduction." Pp. 1-19 in *The well-being of children in the UK*, edited by J. Bradshaw and E. Mayhew. London: Save the Children.

Brady-Smith, Christy, Jeanne Brooks-Gunn, Jane Waldfogel, and Rebecca Fauth. 2001. "Work or welfare? Assessing the impacts of recent employment and policy changes on very young children." *Evaluation and Program Planning* 24:409-425.

Bridges, Lisa J. 2003. "Trust, attachment and relatedness." Pp. 177-189 in *Well-being: Positive development across the life course*, edited by M. H. Bornstein, L. Davidson, C. L. M. Keyes, K. A. Moore, and The Center for Child Well-Being. Mahwah, NJ: Lawrence Erlbaum Associates.

Briggs-Gowan, M J, A S Carter, J R Irwin, K Wachtel, and D V Cicchetti. 2004. "The Brief Infant -Toddler Social and Emotional Assessment: Screening for social-emotional problems and delays in competence." *Journal of Pediatric Psychology* 29:143-155.

Bronfenbrenner, Urie. 1979. *The ecology of human development: Experiments by nature and design*. Cambridge, MA: Harvard University Press.

Brooks-Gunn, Jeanne. 2003. "Do you believe in magic?: What we can expect from early childhood intervention programs." *Social Policy Report* XVII.

Brooks-Gunn, Jeanne and Greg J Duncan. 1997. "The effects of poverty on children." *Future of Children* 7:55-71.

Brooks-Gunn, Jeanne, Greg J Duncan, and Pia Rebello Britto. 1999. "Are socioeconomic gradients for children similar to those for adults?" Pp. 94-124 in *Developmental health and the wealth of nations: Social, biological, and educational dynamics*, edited by D. P. Keating and C. Hertzman. New York: The Guilford Press.

Brooks-Gunn, Jeanne, Greg J Duncan, Pamela K Klebanov, and Naomi Sealand. 1993. "Do neighborhoods influence child and adolescent development?" *American Journal of Sociology* 99:353-395.

Brown, Brett and Kristin Anderson Moore. 2009. "What gets measured gets done: High priority opportunities to improve our nation's capacity to monitor children and youth well-being. A White Paper for the Anne E. Casey Foundation." Child Trends, Washington DC.

Buka, Stephen L, Theresa L Stichick, Isolde Birdthistle, and Felton J Earls. 2001. "Youth exposure to violence: Prevalence, risks, and consequences." *American Journal of Orthopsychiatry* 71:298-310.

Burchinal, Margaret R, J E Roberts, R Riggins, S A Zeisel, E Neebe, and D Bryant. 2000. "Relating quality of center-based child care to early cognitive and language development longitudinally." *Child Development* 71:339-357.

Burton, Linda M. and Robin L Jarrett. 2000. "In the mix, yet on the margins: The place of families in urban neighborhood and child development research." *Journal of Marriage and the Family* 62:1114-1135.

Campbell, Frances A, Craig T Ramey, Elizabeth Pungello, Joseph Sparling, and Shari Miller-Johnson. 2002. "Early childhood education: Young adult outcomes from the Abecedarian Project." *Applied Developmental Science* 6:42-57.

Carey, W B and S C McDevitt. 1978. "Revision of the Infant Temperament Questionnaire." *Pediatrics* 61:735-739.

Caspi, Avshalom, Alan Taylor, Terrie E Moffitt, and Robert Plomin. 2000. "Neighborhood deprivation affects children's mental health: Environmental risk identified in a genetic design." *Psychological Science* 11:338-342.

Chase-Lansdale, P Lindsay, Rachel A Gordon, Jeanne Brooks-Gunn, and Pamela Klebanov. 1997. "Neighborhood and family influences on the intellectual and behavioral competence of preschool and early school-age children." Pp. 79-118 in *Neighborhood poverty: Vol 1. Context and consequences for children*, edited by J. Brooks-Gunn, G. J. Duncan, and J. L. Aber. New York: Russell Sage Foundation.

Child Trends. 2007. "Quality in early childhood care and education settings: A compendium of measures." Child Trends, Washington, DC.

Clements, Angela, Dean Fletcher, and Nina Parry-Langdon. 2008. "Three years on: Survey of the development and emotional well-being of children and young people." Office for National Statistics.

Cole, Pamela M, Joan Luby, and Margaret W Sullivan. 2008. "Emotions and the development of childhood depression: Bridging the gap." *Child Development Perspectives* 2:141-148.

Cole, Pamela M, Sarah E Martin, and Tracy A Dennis. 2004. "Emotion regulation as a scientific construct: methodological challenges and directions for child development research." *Child Development* 75:317-333.

Communities and Local Government. 2007. "The English Indices of Deprivation 2007: Summary." Communities and Local Government, London.

—. 2008a. "English house condition survey 2006: Annual Report." Communities and Local Government, London.

—. 2008b. "Housing in England 2006/07: A report based on the 2006/07 Survey of English Housing, carried out by the National Centre for Social Research." Communities and Local Government, London.

Conger, Rand D and Glen H. Elder. 1994. *Families in troubled times: Adapting to change in rural America*. New York: Aldine de Gruyter.

Conner, Jeanette M. 2003. "Physical activity and well-being." Pp. 65-79 in *Well-being: Positive development across the life course*, edited by M. H. Bornstein, L. Davidson, C. L. M. Keyes, K. A. Moore, and The Center for Child Well-Being. Mahwah, NJ: Lawrence Erlbaum Associates.

Coulton, Claudia J and Jill E Korbin. 2007. "Indicators of child well-being through a neighborhood lens." *Social Indicators Research* 84:349–361.

CPMO Research Team. 2006. "Up to age 7: Family background and child development up to age 7 in the Avon Longitudinal Survey of Parents and Children (ALSPAC) non-technical summary." University of Bristol, Bristol.

Cullis, Andy and Kirstine Hansen. 2008. "Child development in the first three sweeps of the Millennium Cohort Study." Department for Children, Schools and Families, London.

Curtis, Lori J, Martin D Dooley, and Shelley A Phipps. 2004. "Child well-being and neighbourhood quality: Evidence from the canadian national longitudinal survey of children and youth." *Social Science and Medicine* 58:1917–1927.

Davidson, Lucy, Mark L Rosenberg, and Kristin A Moore. 2003. "Well-being and the future: Using science based knowledge to inform practice and policy." Pp. 525-542 in *Well-being: Positive development across the life course*, edited by M. H. Bornstein, L. Davidson, C. L. M. Keyes, K. A. Moore, and The Center for Child Well-Being. Mahwah, NJ: Lawrence Erlbaum Associates.

Davis-Kean, Pamela E and Howard M Sandler. 2001. "A meta-analysis of measures of self-esteem for young children: A framework for future measures." *Child Development* 72:887-906.

Davis, Elise, Elizabeth Waters, Andrew Mackinnon, Dinah Reddihough, H Kerr Graham, Ozlem Mehmet-Radji, and Roslyn Boyd. 2006. "Paediatric quality of life instruments: A review of the impact of the conceptual framework on outcomes." *Developmental Medicine and Child Neurology* 48:311–318.

Department for Transport. 2007. "Child Road Safety Strategy." Department for Transport, London.

Department of Health. 2003. "Infant feeding recommendation."

—. 2004. "At Least Five a Week: Evidence on the Impact of Physical Activity and its Relationship to Health." Department of Health, London.

Dex, Shirley and Heather Joshi. 2004. "Millennium cohort study first survey: A user's guide to initial findings." Centre for Longitudinal Studies, Bedford Group for Lifecourse and Statistical Studies, Institute of Education, University of London, London.

Dodge, Kenneth H, Gregory S Pettit, and John E Bates. 1994. "Socialization mediators of the relation between socioeconomic status and child conduct problems." *Child Development* 65:649-665.

Duncan, Greg J, Jeanne Brooks-Gunn, and Pamela K Klebanov. 1994. "Economic deprivation and early-childhood development." *Child Development* 65:296-318.

Duncan, Greg J, Chantelle J Dowsett, Amy Claessens, Katherine Magnuson, Aletha C Huston, Pamela Klebanov, Linda S Pagani, Leon Feinstein, Mimi Engel, Jeanne Brooks-Gunn, Holly Sexton, and Kathryn Duckworth. 2007. "School readiness and later achievement." *Developmental Psychology* 23:1428–1446.

Duncan, Greg J, W Jean Yeung, Jeanne Brooks-Gunn, and Judith R Smith. 1998. "How much does childhood poverty affect the life chances of children?" *American Sociological Review* 63:406-423.

Duncan, Greg J. and Jeanne Brooks-Gunn. 1997. "Consequences of growing up poor." New York: Russell Sage Foundation.

Dunn, Lloyd M and Leota M Dunn. 1997. *Examiner's manual for PPVT-III: Peabody Picture Vocabulary Test Third Edition*. Circle Pines, MN: American Guidance Service.

Earls, Felton, Jacqueline McGuire, and Sharon Shay. 1994. "Evaluating a community intervention to reduce the risk of child abuse: Methodological strategies in conducting neighborhood surveys." *Child Abuse and Neglect* 18:473-485.

Early, Diane M, Kelly L Maxwell, Margaret Burchinal, Soumya Alva, Randall H Bender, Donna Bryant, Karen Cai, Richard M Clifford, Caroline E banks, James A Griffin, Gary T Henry, Carollee Howes, Jeniffer Iriondo-Perez, Hyun-Joo Jeon, Andrew J Mashburn, Ellen Peisner-

Feinberg, Robert C Pianta, Nathan Vandergrift, and Nicholas Zill. 2007. "Teachers' education, classroom quality, and young children's academic skills: Results from seven studies of preschool programs." *Child Development* 78:558 – 580.

Eder, Rebecca A. 1990. "Uncovering young children's psychological selves: Individual and developmental differences." *Child Development* 61:849-863.

Eisenberg, Nancy. 2003. "Prosocial behavior, empathy, and sympathy." Pp. 253-265 in *Well-being: Positive development across the life course*, edited by M. HBornstein, L. Davidson, C. LMKeyes, K. AMoore, and The Center for Child Well-Being. Mahwah, NJ: Lawrence Erlbaum Associates.

Elder, Glen H. 1974. *Children of the great depression: Social change in life experience*. Chicago, Ilinois: University of Chicago Press.

Elliott, C D, P Smith, and K McCulloch. 1997. *British Abilities Scale II technical manual*. London: NFER-Nelson.

Elliott, Jane and Romesh Vaitilingham. 2008. "Now we are 50: Key findings from the National Child Development Study." Centre for Longitudinal Studies, Institute of Education, University of London, London.

Ereaut, Gill, Rebecca Whiting, and Linguistic Landscapes. 2008. "What do we mean by 'wellbeing'? And why might it matter?" Department for Children, Schools and Families.

Evans, Gary W. 2006. "Child development and the physical environment." *Annual Review Psychology* 57:423–51.

Farley, Thomas A, Rebecca A Meriwether, Erin T Baker, Liza T Watkins, Carolyn C Johnson, and Larry S Webber. 2007. "Safe play spaces to promote physical activity in inner-city children: Results from a pilot study of an environmental intervention." *Research and Practice* 97:1625-1631.

Fauth, Rebecca C, Christy Brady-Smith, and Jeanne Brooks-Gunn. 2003. "Poverty and education: Children and adolescents." in *Encyclopedia of education*, edited by J. W. Guthrie. New York: Macmillan.

Fauth, Rebecca C and Jeanne Brooks-Gunn. 2008. "Are some neighborhoods better for child health than others?" Pp. 344-376 in *In Making Americans healthier: Social and economic policy as health policy*, edited by R. F. Schoeni, J. S. House, G. A. Kaplan, and H. Pollack. New York: Russell Sage Foundation.

Federal Interagency Forum on Child and Family Statistics. 2008. *America's children in brief: Key national indicators of well-being 2008*. Washington, DC: US Government Printing Office.

Feinstein, Leon and Kathryn Duckworth. 2006. "Development in the early years: Its importance for school performance and adult outcomes." DfES Centre for Research on the Wider Benefits of Learning (WBL), London.

Feinstein, Leon, Barbara Hearn, Zoe Renton, Caroline Abrahams, and Mary MacLeod. 2007. *Reducing inequalities: Realising the talents of all*. London: National Children's Bureau.

Fiese, Barbara H, Tanya Eckert, and Mary Spagnola. 2006. "Family context in early childhood: A look at practices and beliefs that promote early learning." Pp. 393-409 in *Handbook of research on the education of young children*, edited by B. Spodek and O. N. Saracho. London: Lawrence Erlbaum Associates.

Finch, Naomi and Beverley Searle. 2005. "Children's lifestyles." Pp. 108-133 in *The well-being of children in the UK*, edited by J. Bradshaw and E. Mayhew. London: Save the Children.

Fjortoft, Ingunn. 2004. "Landscape as playscape: The effects of natural environments on children's play and motor development." *Children, Youth and Environments* 14:21-44.

Flouri, Eirini and Ann Buchanan. 2004. "Early father's and mother's involvement and child's later educational outcomes." *British Journal of Educational Psychology* 74:141-153.

Folio, Rhonda and Rebecca Fewell. 2002. *Peabody Developmental Motor Scales and Activity Scales (PDMS-2)*. Chicago: Riverside.

Frankenburg, W K and J B Dodds. 1967. "Denver Developmental Screening Test." *Pedriatrics* 71:181-191.

Furlong, W J, D H Feeny, G W Torrance, and R D Barr. 2001. "The Health Utilities Index (HUI) System for Assessing Health-Related Quality of Life in Clinical Studies." *Annals of Medicine* 33:375-384.

Ginsburg, Kenneth R and Committee on Communications and and the Committee on Psychosocial Aspects of Child and Family Health. 2007. "The importance of play in promoting healthy child development and parent-child bonds." *Pediatrics* 119:182-191.

Gomez, Jorge E, Beth Ann Johnson, Martha Selva, and James F Sallis. 2004. "Violent crime and outdoor physical activity among inner-city youth." *Preventative Medicine* 39:876-881.

Goodman, R. 1997. "The Strengths and Difficulties Questionnaire: A research note." *Journal of Child Psychology and Psychiatry* 38:581-586.

Goodman, R, H Meltzer, and V Bailey. 1998. "The Strengths and Difficulties Questionnaire: A pilot study on the validity of the self-report version." *European Child and Adolescent Psychiatry* 7:125-130.

Government Social Research. 2008. "2008 children and young people's well-being monitor for Wales." Welsh Assembley Government.

Graber, Julia A and Jeanne Brooks-Gunn. 1996. "Transitions and turning points: Navigating the passage from childhood through adolescence." *Developmental Psychology* 32:768-776.

Grange, A, H Bekker, J Noyes, and P Langley. 2007. "Adequacy of health-related quality of life measures in children under 5 years old: Systematic review." *Journal of Advanced Nursing* 59:197–220.

Granger, Robert C. 2008. "After-school programs and academics: Implications for policy, practice, and research." *Social Policy Report* XXII.

Graziano, William G and Renee M Tobin. 2003. "Emotion regulation from infancy through adolescence." Pp. 139-154 in *Well-being: Positive development across the life course*, edited by M. H. Bornstein, L. Davidson, C. L. M. Keyes, K. A. Moore, and The Center for Child Well-Being. Mahwah, NJ: Lawrence Erlbaum Associates.

Greenberg, Mark T, John D Coie, Liliana J Lengua, and Ellen E Pinderhughes. 1999. "Predicting developmental outcomes at school entry using a multiple-risk model: Four American communities." *Developmental Psychology* 35:403-417.

Gregg, Paul, Susan Harkness, and Stephen Machin. 1999. "Child poverty and its consequences." Joseph Rowntree Foundation, London.

Gregg, Paul, Carol Propper, and Elizabeth Washbrook. 2007. "Understanding the relationship between parental income and multiple child outcomes: a decomposition analysis." Centre for Analysis of Social Exclusion (CASE), London School of Economics, London.

Gresham, Frank and Stephen Elliot. 1990. "Social Skills Rating System (SSRS)." Bloomington, MN: Pearson Assessments.

Gutman, Leslie Morrison and John Brown. 2008. "The importance of social worlds: An investigation of peer relations." Department for Children, Schools and Families, Sheffield.

Halle, Tamara G , Mairead Reidy, Martha Moorehouse, Martha Zaslow, Catherine Walsh, Julia Calkins, Nancy Geyelin Margie, and Ayonda Dent. 2008. "Progress in the development of indicators of school readiness." Pp. 65-102 in *Key indicators of child and youth well-being: Completing the picture*, edited by B. V. Brown. New York: Lawrence Erlbaum Associates.

Halpern-Felsher, Bonnie L, James P Connell, Margaret Beale Spencer, J Lawrence Aber, Greg J Duncan, Elizabeth Clifford, Warren E Crichlow, Peter A Usinger, Steven P Cole, LaRue Allen, and Edward Seidman. 1997. "Neighborhood and family factors predicting educational risk and attainment in African American and White children and

adolescents." Pp. 146-173 in *Neighborhood poverty: Vol 1. Context and consequences for children*, edited by J. Brooks-Gunn, G. J. Duncan, and J. L. Aber. New York: Russell Sage Foundation.

Hansen, Kirstine and Heather Joshi. 2007. "Millennium cohort study second survey a user's guide to initial findings." Centre for Longitudinal Studies, Bedford Group for Lifecourse and Statistical Studies, Institute of Education, University of London, London.

—. 2008. "Millennium cohort study third survey: A user's guide to initial findings." Centre for Longitudinal Studies, Institute of Education, University of London, London.

Harms, T, R M Clifford, and D Cryer. 1998. *Early Childhood Environment Rating Scale, Revised edition.* New York: Teachers College Press.

Harter, Susan and Robin Pike. 1984. "The pictorial scale of perceived competence and social acceptance for young children." *Child Development* 55:1969-1982.

Haynes, Robin, Andrew P Jones, Richard Reading, Konstantinos Daras, and Alan Emond. 2008. "Neighbourhood variations in child accidents and related child and maternal characteristics: Does area definition make a difference?" *Health and Place* 14:693–701.

Heckman, James J. 2006. "Skill formation and the economics of investing in disadvantaged children." *Science* 312:1900-1902.

Helburn, S W. 1999. "Cost, quality, and child outcomes in child care centers: Technical report." Department of Economics, Center for Research in Economic and Social Policy, University of Colorado, Denver.

Henderson, S and D Sugden. 1992. "The Movement Assessment Battery for Children." Psychological Corporation, New York.

Hill, Nancy E and Mindy A Herman-Stahl. 2002. "Neighborhood safety and social involvement: Associations with parenting behaviors and depressive symptoms among African American and Euro-American mothers." *Journal of Family Psychology* 16:209-219.

Hirsch, Donald and Nick Spencer. 2008. "Unhealthy lives: Intergenerational links between child poverty and poor health in the UK." End Child Poverty, London.

Hobcraft, John and Kathleen Kiernan. 2001. "Childhood poverty, early motherhood and adult social exclusion." *British Journal of Sociology* 52:495–517.

Hodges, K and M M Wong. 1996. "Psychometric Characteristics of a Multidimensional Measure to Assess Impairment: The Child and Adolescent Functional Assessment Scale." *Journal of Child and Family Studies* 5:445-67.

Hogan, Dennis P and Michael E Msall. 2008. "Key indicators of health and safety: Infancy, preschool, and middle childhood." Pp. 1-45 in *Key indicators of child and youth well-being: Completing the picture*, edited by B. V. Brown. New York: Lawrence Erlbaum Associates.

Hooper, Carol-Ann. 2005. "Child maltreatment." Pp. 182-201 in *The well-being of children in the UK*, edited by J. Bradshaw and E. Mayhew. London: Save the Children.

Hooper, Carol-Ann, Sarah Gorin, Christie Cabral, and Claire Dyson. 2007. "Living with hardship 24/7: The diverse experiences of families in poverty in England." The Frank Battle Trust, London.

Howes, Carollee. 1990. "Can the age of entry into child care and the quality of child care predict adjustment in kindergarten?" *Developmental Psychology* 26:292-303.

Howes, Carollee and E W Smith. 1995. "Relations among child care quality, teacher behavior, children's play activities, emotional security, and cognitive activity in child care." *Early Childhood Research Quarterly* 10.

Huby, Meg and Jonathan Bradshaw. 2006. "A review of the environmental dimension of children and young people's well-being." The University of York, York.

Hughes, Honore M. 1984. "Measures of self-concept and self-esteem for children ages 3-12 years: A review and recommedations." *Clinical Psychology Review* 4:657-692.

Jackson, Richard J J and June Tester. 2008. "Environment shapes health, including children's mental health." *Journal of the American Academy of Child and Adolescent Psychiatry* 47:129-131.

Janus, M and D Offord. 2000. "Reporting on readiness to learn in Canada." *Canadian Journal of Policy Research* 1:71-75.

Jennings, Kay Donahue and Laura J Dietz. 2003. "Mastery motivation and goal persistence in young children." Pp. 295-309 in *Well-being: Positive development across the life course*, edited by M. H. Bornstein, L. Davidson, C. L. M. Keyes, K. A. Moore, and The Center for Child Well-Being. Mahwah, NJ: Lawrence Erlbaum Associates.

Karen, R. 1994. *Becoming attached: First relationships and how they shape our capacity to love*. Oxford: Oxford University Press.

Karoly, Lynn A, M Rebecca Kilburn, and Jill S Cannon. 2005. *Early childhood interventions: Proven results, future promise*. Santa Monica, CA: RAND Corporation.

Katz, Ilan, Judy Corlyon, Vincent La Placa, and Sarah Hunter. 2007. "The relationship between parenting and poverty." Joseph Rowntree Foundation, York.

Kiernan, Kathleen E and MCarmen Huerta. 2008. "Economic deprivation, maternal depression, parenting and children's cognitive and emotional development in early childhood." *British Journal of Sociology* 59:783-806.

Kiernan, Kathleen E and Fiona K Mensah. 2008. "Poverty, maternal depression, family status and children's cognitive and behavioural development in early childhood: A longitudinal study." Centre for Longitudinal Studies, Institute of Education, University of London, London.

Klebanov, Pamela K, Jeanne Brooks-Gunn, L Chase-Lansdale, and Rachel A Gordon. 1997. "Are neighborhood effects on young children mediated by features of the home environment?" Pp. 119-145 in *Neighborhood poverty: Vol 1. Context and consequences for children*, edited by J. Brooks-Gunn, G. J. Duncan, and J. L. Aber. New York: Russell Sage Foundation.

Klebanov, Pamela K, Jeanne Brooks-Gunn, and Greg J Duncan. 1994. "Does neighborhood and family poverty affect mothers' parenting, mental health, and social support?" *Journal of Marriage and the Family* 56:441-455.

Klebanov, Pamela K, Jeanne Brooks-Gunn, Cecilia McCarton, and Marie C McCormick. 1998. "The contribution of neighborhood and family income to developmental test scores over the first three years of life." *Child Development* 68:1420-1436.

Kochanska, Grazyna, Nazan Aksan, Theresa R Prisco, and Erin E Adams. 2008. "Mother – child and father – child mutually responsive orientation in the first 2 years and children's outcomes at preschool age: Mechanisms of influence." *Child Development* 79:30-44.

Kochanska, Grazyna, Kathleen T Murray, and Elena T Harlan. 2000. "Effortful control in early childhood: Continuity and change, antecedents, and implications for social development." *Developmental Psychology* 36:220-232.

Kohen, Daphna, Jeanne Brooks-Gunn, Tama Leventhal, and Clyde Hertzman. 2002. "Neighborhood income and physical and social disorder in Canada: Associations with young children's competencies." *Child Development* 73:1844-1860.

Kohen, Dafna E, Tama Leventhal, VSusan Dahinten, and Cameron N McIntosh. 2008. "Neighborhood Disadvantage: Pathways of Effects for Young Children." *Child Development* 79:156 – 169.

Korenman, S, J E Miller, and J E. Sjaastad. 1995. "Long-term poverty and child development in the United States: Results from the NLSY." *Children and Youth Services Review* 17:127-155.

Kovacs, Maria. 1992. *The Children's Depression Inventory Manual*. North Tonawanda: Multi-Health Systems Inc.

Landgraf, J M. 1994. "The Infant/Toddle Child Health Questionnaire: Conceptual Framework, Logic Content, and Preliminary Psychometric Results." Health Act, Boston.

Landgraf, J M, L Abetz, and J A Ware. 1996. *The CHQ User's Manual*. Boston, MA: The Health Institute, New England Medical Centre.

Leavitt, Caroline H, Thomas F Tonniges, and Martha F Rogers. 2003. "Good nutrition - the imperative for positive development." Pp. 35-49 in *Well-being: Positive development across the life course*, edited by M. H. Bornstein, L. Davidson, C. L. M. Keyes, K. A. Moore, and The Center for Child Well-Being. Mahwah, NJ: Lawrence Erlbaum Associates.

Lengua, Liliani J, Nicole R Bush, Anna C Long, Erica A Kovacs, and Anika M Trancik. 2008. "Effortful control as a moderator of the relation between contextual risk factors and growth in adjustment problems." *Development and Psychopathology* 20:509-528.

Lester, Stuart and Wendy Russell. 2008. "Play for a change. Play, policy and practice: A review of contemporary perspectives." National Children's Bureau, London.

Leventhal, Tama and Jeanne Brooks-Gunn. 2000. "The neighborhoods they live in: Effects of neighborhood residence upon child and adolescent outcomes." *Psychological Bulletin* 126:309-337.

—. 2001. "Changing neighborhoods and child well-being: Understanding how children may be affected in the coming century." in *Children at the Millennium: Where have we come from, where are we going?*, edited by S. L. Hofferth and T. J. Owens. London: Elsevier Science.

Linver, Miriam R, Jeanne Brooks-Gunn, and Dafna E Kohen. 2002. "Family processes as pathways from income to young children's development." *Developmental Psychology* 38:719-734.

Linver, Miriam R., Jeanne Brooks-Gunn, and Natasha Cabrera. 2004. "The Home Observation for Measurement of the Environment (HOME) Inventory: The derivation of conceptually designed scales." *Parenting: Science and Practice* 4:99-114.

Loeb, Susanna, Cecilia Rouse, and Anthony Shorris. 2007. "Introducing the issue." *Future of Children* 17:3-14.

Love, John M, Ellen Eliason Kisker, Christine M Ross, Peter Z Schochet, Jeanne Brooks-Gunn, Diane Paulsell, Kimberly Boller, Jill Constantine, Cheri Vogel, Alison Sidle Fuligni, and Christy Brady-Smith. 2002. "Making a difference in the lives of infants and toddlers and their families: The impacts of Early Head Start." U.SDepartment of Health and Human Services, Washington DC.

Love, John M, Linda Harrison, Abraham Sagi-Schwartz, Marinus H Van IJzendoorn, Christine Ross, Judy A Ungerer, Helen Raikes, Christy

Brady-Smith, Kimberly Boller, Jeanne Brooks-Gunn, Jill Constantine, Ellen E Kisker, Diane Paulsell, and Rachel Chazan-Cohen. 2003. "Child care quality matters: How conclusions may vary with context." *Child Development* 74:1021-1033.

MacWhinney, Brian and Marc H Bornstein. 2003. "Language and literacy." Pp. 331-339 in *Well-being: Positive development across the life course*, edited by M. H. Bornstein, L. Davidson, C. L. M. Keyes, K. A. Moore, and The Center for Child Well-Being. Mahwah, NJ: Lawrence Erlbaum Associates.

Margolin, Gayla and Elana B Gordis. 200. "The effects of family and community violence on children." *Annual Review of Psychology* 51.

Markwardt, Frederick C. 1989. *Peabody Individual Achievement Test - Revised*. Circle Pines, MN: American Guidance Service.

Martinez, Pedro and John E Richters. 1993. "The NIMH Community Violence Project: IIChildren's distress symptoms associated with violence exposure." *Psychiatry* 56:22-35.

Mattocks, Calum, Andy Ness, Kevin Deere, Kate Tilling, Sam Leary, Steven N Blair, and Chris Riddoch. 2008. "Early life determinants of physical activity in 11 to 12 year olds: Cohort study." *British Medical Journal* 336:26-29.

Mayer, Daniel and John Ralph. 2008. "Key indicators of school quality." Pp. 279-305 in *Key indicators of child and youth well-being: Completing the picture*, edited by B. VBrown. New York: Lawrence Erlbaum Associates.

McCabe, Lisa A and Jeanne Brooks-Gunn. 2007. "With a little help form my friends?: Self-regulation in groups of young children." *Infant Mental Health Journal* 28:584-605.

McCulloch, Andrew. 2006. "Variation in children's cognitive and behavioural adjustment between different types of place in the British National Child Development Study." *Social Science and Medicine* 62:1865-1879.

McCulloch, Andrew and Heather E Joshi. 2001. "Neighborhourhood and family influences on the cognitive ability of children in the British National Child Development Study." *Social Science and Medicine* 53:579-591.

McLeod, J D and M J Shanahan. 1993. "Poverty, parenting, and children's mental health." *American Sociological Review* 58:351-366.

McLoyd, Vonnie C. 1998. "Socioeconomic disadvantage and child development." *American Psychologist* 53:185-204.

Medoff-Cooper, B, W B Carey, and S C McDevitt. 1993. "Early Infancy Temperament Questionnaire." *Journal of Developmental and Behavioral Pediatrics* 14: 230-235.

Melhuish, Edward, Jay Belsky, Alastair H Leyland, Jacqueline Barnes, and National Evaluation of Sure Start Research Team. 2008. "Effects of fully-established sure start local programmes on 3-year-old children and their families living in England: A quasi-experimental observational study." *Lancet* 372:1641-1647.

Merrell, Kenneth M. 2003. *Behavioral, social, and emotional assessment of children and adolescents*: Lawrence Erlbaum Associates.

Moore, Kristin Anderson, Laura Lippman, and Brett Brown. 2004. "Indicators of child well-being: The promise for positive youth development." *The ANNALS of the American Academy of Political and Social Science* 591:125-145.

Moore, Kristin Anderson and Christina Theokas. 2008. "Conceptualizing a monitoring system for indicators in middle childhood." *Child Indicators Research* 1:109–128.

Moore, Kristin Anderson, Sharon Vandivere, Astrid Atienza, and Tatia Thiot. 2008. "Developing a monitoring system for indicators in middle childhood: Identifying measures." *Social Indicators Research* 1:129–155.

Moore, Kristin Anderson, Sharon Vandivere, Laura Lippman, Cameron McPhee, and Margot Bloch. 2007. "An index of the condition of children: The ideal and a less-than-ideal U.Sexample." *Social Indicators Research* 84:291–331.

Morenoff, Jeffrey D and Robert J Sampson. 2008. "Constructing community indicators of child well-being." Pp. 307-331 in *Key indicators of child and youth well-being: Completing the picture*, edited by B. V. Brown. New York: Lawrence Erlbaum Associates.

NICHD Early Child Care Research Network. 1999. "Chronicity of maternal depressive symptoms, maternal sensitivity, and child functioning at 36 months." *Developmental Psychology* 35:1297-1310.

—. 2002. "Child-care structure - process - outcome: Direct and indirect effects of child-care quality on young children's development." *Psychological Science* 13:199-206.

—. 2005. "Duration and developmental timing of poverty and children's cognitive and social development from birth through third grade." *Child Development* 76:795 – 810.

—. 2006. "Child-care effect sizes for the NICHD Study of Early Child Care and Youth Development." *American Psychologist* 61:99-116.

O'Connor, Thomas G, Jonathan Heron, Jean Golding, Vivette Glover, and ALSPAC Study Team. 2003. "Maternal antenatal anxiety and behavioural/emotional problems in children: A test of a programming hypothesis." *Journal of Child Psychology and Psychiatry* 44:1025-1036.

O'Connor, Thomas G and Stephen B C Scott. 2007. "Parenting and outcomes for children." Joseph Rowntree Foundation, London.

Obradovic, Jelena, Manfred H Mvan Dulmen, Tuppett M Yates, Elizabeth A Carlson, and Byron Egeland. 2006. "Developmental assessment of competence from early childhood to middle adolescence." *Journal of Adolescence* 29:857–889.

Osofsky, Joy D. 1999. "The impact of violence on children." *Future of Children* 9:33-49.

Pagani, Linda, Bernard Boulerice, and Richard E Tremblay. 1997. "The influence of poverty on children's classroom placement and behavior problems." Pp. 311-339 in *Consequences of growing up poor*, edited by G. J. Duncan and J. Brooks-Gunn. New York: Russell Sage Foundation.

Paxson, Christina, Elisabeth Donahue, CTracy Orleans, and Jeanne Ann Grisso. 2006. "Introducing the issue." *Future of Children* 16:3-17.

Pickett, Kate E and Richard G Wilkinson. 2007. "Child wellbeing and income inequality in rich societies: Ecological cross sectional study." *British Medical Journal* 335:1136-1085.

Pinderhughes, Ellen E, Robert E Nix, Michael Foster, and Damon Jones. 2001. "Parenting in context: Impact of neighborhood poverty, residential stability, public services, social networks, and danger on parental behaviors." *Journal of Marriage and the Family* 63:941-953.

Pinheiro, Paulo Sergio. 2006. *World report on violence against children*. Geneva: ATAR Roto Presse.

Plank, Stephen B and Douglas J MacIver. 2003. "Educational achievement." Pp. 341-354 in *Well-being: Positive development across the life course*, edited by M. H. Bornstein, L. Davidson, C. L. M. Keyes, K. A. Moore, and The Center for Child Well-Being. Mahwah, NJ: Lawrence Erlbaum Associates.

Plewis, Ian, George Smith, Gemma Wright, and Andrew Cullis. 2001. "Linking child poverty and child outcomes: Exploring data and research strategies." Department for Work and Pensions, London.

Pomerantz, Eva M, Wendy S Grolnick, and Carrie E Price. 2005. "The role of parents in how children approach achievement." Pp. 259-278 in *Handbook of competence and motivation*, edited by A. J. Elliot and C. S. Dweck. London: The Guilford Press.

Quilgars, Deborah. 2005. "Children, housing and neighbourhoods." Pp. 289-310 in *The well-being of children in the UK*, edited by J. Bradshaw and E. Mayhew. London: Save the Children.

Raver, C Cybele. 2004. "Placing emotional self-regulation in sociocultural and socioeconomic contexts." *Child Development* 75:346-353.

Reilly, John J, Julie Armstrong, Ahmad R Dorosty, Pauline M Emmett, Andy Ness, I Rogers, Colin Steer, Andrea Sherriff, and ALSPAC Study Team. 2005. "Early life risk factors for obesity in childhood: Cohort study." *British Medical Journal* 330:1357.

Reynell, J. 1990. *Reynell Developmental Language Scales*. Los Angeles, CA: Western Psychological Services.

Reynolds, Liam and Nicola Robinson. 2005. "Full House?: How overcrowded housing effects families." Shelter, London.

Richters, John E and Pedro Martinez. 1993. "The NIMH Community Violence Project: IChildren as victims of and witnesses to violence." *Psychiatry* 56:7-21.

Rigby, Michael, J, Lennart Kohler, I, Mitch Blair, E, and Reli Metchler. 2003. "Child Health Indicators for Europe: A priority for a caring society." *European Journal of Public Health* 13:38-46.

Ripke, Marika, Aletha C Huston, Jacquelynne Eccles, and Janice Templeton. 2008. "The assessment of psychological, emotional, and social development indicators in middle childhood." Pp. 131-165 in *Key indicators of child and youth well-being: Completing the picture*, edited by B. V. Brown. New York: Lawrence Erlbaum Associates.

Robinson, Monique, Wendy H Oddy, Jianghong Li, Garth E Kendall, Nicholas Hde Klerk, Sven R Silburn, Stephen R Zubrick, John P Newnham, Fiona J Stanley, and Eugen Mattes. 2008. "Pre- and postnatal influences on preschool mental health: a large-scale cohort study." *Journal of Child Psychology and Psychiatry* 49:1118-1128.

Rock, Donald A, Judith M Pollack, and Elvira Germino. 2002. "Early Childhood Longitudinal Study - Kindergarten Class of 1998-99 (ECLS-K), psychometric report for kindergarten through first grade." US Department of Education, National Center for Education Statistics, Washington, DC.

Rodgers, Bryan and Jan Pryor. 1998. "Divorce and separation: The outcomes for children." Joseph Rowntree Foundation, London.

Ross, Catherine E. 2000. "Neighborhood disadvantage and adult depression." *Journal of Health and Social Behavior* 41:177-187.

Ross, Catherine E and John Mirowsky. 2001. "Neighborhood disadvantage, disorder, and health." *Journal of Health and Social Behavior* 42:258-276.

Roth, Jodie L, Jeanne Brooks-Gunn, Lawrence Murray, and William Foster. 1998. "Promoting healthy adolescents: Synthesis of youth development program evaluations." *Journal of Research on Adolescence* 8:423-459.

Ryan, Rebecca M, Anne Martin, and Jeanne Brooks-Gunn. 2006. "Is one good parent good enough? Patterns of mother and father parenting and child cognitive outcomes at 24 and 36 months." *Parenting: Science and Practice* 6:211-228.

Sampson, Robert J. 1997. "Collective regulation of adolescent misbehavior: Validation results from eighty Chicago neighborhoods." *Journal of Adolescent Research* 12:227-244.

Sampson, Robert J, Jeffrey D Morenoff, and Thomas Gannon-Rowley. 2002. "Assessing 'neighborhood effects': Social processes and new directions in research." *Annual Review of Sociology* 28:443-478.

Sampson, Robert J and Stephen W Raudenbush. 1999. "Systematic social observation of public spaces: A new look at disorder in urban neighborhoods." *American Journal of Sociology* 105:603-651.

Sampson, Robert J, Stephen W Raudenbush, and Felton Earls. 1997. "Neighborhoods and violent crime: A multilevel study of collective efficacy." *Science* 277:918-924.

Schunk, Dale H and Frank Pajares. 2005. "Competence perceptions and academic functioning." Pp. 85-104 in *Handbook of competence and motivation*, edited by A. J. Elliot and C. S. Dweck. London: The Guilford Press.

Schwab-Stone, Mary E, Tim S Ayers, Wesley Kasprow, Charlene Voyce, Charles Barone, Timothy Shriver, and Roger P Weissberg. 1995. "No safe haven: A study of violence exposure in an urban community." *Journal of the American Academy of Child and Adolescent Psychiatry* 34:1343-1352.

Schwab-Stone, Mary E, Chuansheng Chen, Ellen Greenberger, David Silver, Judith Lichtman, and Charlene Voyce. 1999. "No safe haven II: The effects of violence exposure on urban youth." *Journal of the American Academy of Child and Adolescent Psychiatry* 38:359-367.

Schweinhart, Lawrence J, J Montie, Z Xiang, W Steven Barnett, Clive R Belfield, and M Nores. 2005. *Lifetime effects: The High/Scope Perry Preschool study through age 40*, Vol. 14. Ypsilanti, MI: High/Scope Press.

Shonkoff, John P and Deborah A Phillips. 2000. *From neurons to neighborhoods: The science of early child development*. Washington DC: National Academy of Sciences.

Sidebotham, Peter, Jon Heron, and ALSPAC Study Team. 2006. "Child maltreatment in the 'children of the nineties': A cohort study of risk factors." *Child Abuse and Neglect* 30:497-522.

Siegler, Robert S. 2003. "Thinking and intelligence." Pp. 311-320 in *Well-being: Positive development across the life course*, edited by M. H. Bornstein, L. Davidson, C. L. M. Keyes, K. A. Moore, and The Center for Child Well-Being. Mahwah, NJ: Lawrence Erlbaum Associates.

Smith, Judith R, Jeanne Brooks-Gunn, and PamelaK Klebanov. 1997. "Consequences of living in poverty for young children's cognitive and verbal ability and early school achievement." Pp. 132-189 in *Consequences of growing up poor*, edited by G. J. Duncan and J. Brooks-Gunn. New York: Russell Sage Foundation.

Smith, Mieko K and Carl E Brun. 2006. "An analysis of selected measures of child well-being for use at school and community-based family resource centers." *Child Welfare* LXXXV:985-1010.

Sutterby, John A and Joe Frost. 2006. "Creating play environments for early childhood: Indoors and out." Pp. 305-321 in *Handbook of research on the education of young children*, edited by B. Spodek and O. N. Saracho. London: Lawrence Erlbaum Associates.

Sylva, Kathy, Edward Melhuish, Pam Sammons, Iram Siraj-Blatchford, and Brenda Taggart. 2004. "The effective provision of pre-school education (EPPE) project: Final report a longitudinal study funded by the DfES 1997-2004." DfES, London.

—. 2008. "Effective Pre-school and Primary Education 3-11 Project (EPPE 3-11). Final report from the primary phase: Pre-school, school and family influences on children's development during Key Stage 2 (Age 7-11)." DCSF, London.

Sylva, Kathy, Alan Stein, Penelope Leach, Jacqueline Barnes, Lars-Erik Malmberg, and FCCC-team. 2007. "Family and child factors related to the use of non-maternal infant care: An English study." *Early Childhood Research Quarterly* 22:118-136.

Tonniges, Thomas F and Caroline H Leavitt. 2003. "Preventive health care in early childhood and through the life span." Pp. 51-64 in *Well-being: Positive development across the life course*, edited by M. H. Bornstein, L. Davidson, C. L. M. Keyes, K. A. Moore, and The Center for Child Well-Being. Mahwah, NJ: Lawrence Erlbaum Associates.

Totsika, Vasiliki and Kathy Sylva. 2004. "The Home Observation for Measurement of the Environment revisited." *Child and Adolescent Mental Health* 9:25-35.

Towner, Elizabeth, Therese Dowswell, Gail Errington, Matthew Burkes, and John Towner. 2005. "Injuries in Children Aged 0-14 Years and Inequalities: A Report Prepared for the Health Development Agency." Health Development Agency, London.

U.S. Department of Health and Human Services. 2006. "The NICHD Study of Early Child Care and Youth Development: Findings for children up to age 4 1/2 years." Author, Washington, DC.

Underdown, Angela. 2007. *Young children's health and well-being*. Maidenhead, Berskshire: Open University Press.

UNICEF. 2007. "Child poverty in perspective: An overview of child well-being in rich countries, Innocenti Report Card 7." UNICEF Innocenti Research Centre, Florence.

—. 2008. "The child care transition, Innocenti Report Card 8." UNICEF Innocenti Research Centre, Florence.

United Nations. 1989. "Convention on the Rights of the Child." United Nations, New York.

Urdan, Tim and Julianne C. Turner. 2005. "Competence motivation in the classroom." Pp. 297-317 in *Handbook of competence and motivation*, edited by A. JElliot and C. SDweck. London: The Guilford Press.

Wallace, Emma, Kate Smith, Julia Pye, Joanne Crouch, Ali Ziff, and Kirsty Burston. 2009. "Extend schools survey of schools, pupils and parents: A quantitative study of perceptions and usage of extended services in schools." Department for Children, Schools and Families, London.

Wheaton, Blair and Philippa Clarke. 2003. "Space meets time: Integrating temporal and contextual influences on mental health in early adulthood." *American Sociological Review* 68:680-706.

Woodcock, R W and M B Johnson. 1990. *Woodcock-Johnson Psycho-Educational Battery-Revised.* New York: Riverside Publishing Company.

World Health Organisation. 2008. "World Report on Child Injury Prevention." World Health Organisation, Geneva.

Xue, Yange, Tama Leventhal, Jeanne Brooks-Gunn, and Felton J Earls. 2005. "Neighborhood residence and mental health problems of 5- to 11-year olds." *Archives of General Psychiatry* 62:554-563.

Yeung, W Jean, Miriam R Linver, and Jeanne Brooks-Gunn. 2002. "How money matters for young children's development: Parental investment and family processes." *Child Development* 73:1861-1879.

Zaff, Jonathan F and Elizabeth C Hair. 2003. "Positive development of the self: Self-concept, self-esteem, and identity." Pp. 235-251 in *Well-being: Positive development across the life course*, edited by M. H. Bornstein, L. Davidson, C. L. M. Keyes, K. A. Moore, and The Center for Child Well-Being. Mahwah, NJ: Lawrence Erlbaum Associates.

Zahn-Waxler, Carolyn, Ronald J Iannotti, E Mark Cummings, and Susan Denham. 1990. "Antecedents of problem behaviors in children of depressed mothers." *Development and Psychopathology* 2:271-291.

Zeitlin, Jennifer, Katherine Wildman, Gérard Bréart, Sophie Alexander, Henrique Barros, Béatrice Blondel, Simone Buitendijk, Mika Gissler, and Alison Macfarlan. 2003. "PERISTAT - Indicators for Monitoring and Evaluating Perinatal Health in Europe." *European Journal of Public Health* 13:29-37.

Zimmerman, I L, G V Steiner, and R E Pond. 1979. *Pond Preschool Language Scale*. San Antonio, TX: The Psychological Corporation.