Chapter 2 Social Determinants of Health and Education: Understanding Intersectionalities during Childhood

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Abstract

This chapter explores the conceptual understandings of health and learning, as well as the health benefits of learning, to address the social factors that determine existing inequalities in these outcomes. Inequalities in health and learning start in early life, are transmitted intergenerationally, and are fuelled by the intersectionality of disadvantage into which children are born. To provide a more comprehensive understanding of the channels by which social determinants reproduce inequalities, the chapter builds on the ecological model developed by Feinstein and colleagues (2008) to make explicit the conditions, forces and systems, that impact the formation and persistence of inequalities. The chapter concludes with the importance of addressing the social factors and processes that cause the reproduction of existing inequalities in health and learning, which are situated within specific contexts, in order to promote a more equitable social agenda.

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Introduction

Across the world, we see radically different health and learning outcomes, from within regions, populations, and communities, as well as between countries. Consider for instance, the life expectancy of a boy born in the UK in 2016, which is on average eight years longer than that of a boy born in the Dominican Republic (WHO, 2016). The same comparison stands for a boy born in one of the most affluent areas of the UK, versus one born in one of the poorest areas of the UK: the life expectancy gap is 8.4 years (Dunnell et al., 2018). With global inequalities at the top of the international agenda, there is a pressing need to consider the ways in which social factors shape the landscape where such inequalities thrive. The socially determined elements of health and learning inequalities are among the key factors that may cause one person's health to vary from that of another, as well as influence an individual's learning opportunities, whether they live in the same communities or thousands of miles away.

Health and learning inequalities start in early childhood, before formal schooling, and continue to widen as children interact with their social environment, gain access to institutions, and transition into adulthood. During the years before a child starts school, the education level of a child's main caregiver has been shown to influence the decisions they make in relation to that child's health and nutrition (Dewalt and Hink, 2009; Sabates and Di Cesare, 2019). Physical health and psychosocial wellbeing in the preschool years are associated with school readiness, and a child's future academic potential (Duncan et al., 2007). Access to schooling, school quality, school health interventions, school meals and the additional resources offered within households, schools and communities, enhance learning and provide opportunities for children to reach their potential (UNESCO, 2014; Glewwe et al., 2014; Evans and Popova, 2015).

Health and learning behaviours, which start to be adopted during early childhood, carry over into adulthood (Viner et al., 2012). These behaviours are socially determined and are key mechanisms of emergence, maintenance and widening of differences in health and learning outcomes over a lifetime. Therefore, action towards creating equity requires an understanding of the conditions that foster diverse states of health throughout childhood, the role of learning before and during formative years, and more broadly, the formation of health and learning behaviours during a person's life.. Importantly, equity requires a deeper understanding of the social determinants of health and learning inequalities.

As we strive towards achieving equity and improving lives, we often frame health and learning interventions as tools to create better conditions. However, inequalities in today's societies are still pervasive. Health and learning must be contextualised and examined through the lens of structural inequalities that exist at global, national, regional and even community levels. Health and learning interventions alone are unlikely to solve inequality gaps (though they may address some of the symptoms of inequality), and reciprocally, inequalities will impact upon the effectiveness of interventions. Addressing inequalities requires an in-depth understanding of the drivers of these inequalities, among which social factors play a significant role. In fact, health and education systems do not exist in a context of equitable social conditions: instead of contributing towards equity, they may reproduce the same inequalities that they are built upon. Therefore, it is important to understand how social determinants are embedded in systems of structural inequalities.

The term 'social determinants' is often used within the context of health, to explain the marked difference in health outcomes observed between different social groups, who often live within close proximity. In this chapter we build on previous theoretical and empirical work which has centred on the role of education as a key determinant of health outcomes. In addition, we consider the ways in which learning can also be socially determined. Therefore, we strive to go beyond the idea that learning is a determinant of health; instead, we aim to engage with the complexities arising from the interplay between learning and health, and health and learning, and how these are influenced by social contexts and institutional settings. Building on previous research on the social determinants of health, the social benefits of learning, and the recent research addressing global learning inequalities, we make a persuasive argument for the need to use a comprehensive model to improve our understanding of the powerful predictors of inequalities in health and learning.

Conceptual understandings of health, learning and their social determinants

Conceptual understandings of health inequalities

Investigating the social determinants of health inequalities requires an understanding of the different concepts of health. There are multiple understandings about what constitutes health, both in terms of 'good' or 'bad' health. For instance, the biomedical model focuses on the absence of disease and emphasises the dynamic physical state of the body (Wade and Halligan, 2004); meanwhile, an ecological model of health understands health-related issues,

not just in terms of the individual, but also in terms of trends and influences at the community level (Golden and Earp, 2012). At the global level, the World Health Organisation (WHO) defines health as "a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity" (WHO, 1948, p. 1). This definition encourages a more holistic understanding, where health has more to do with the positive existence of certain conditions than the absence of disease.

Two of the key approaches that emphasise the social aspects of health are the social and the biopsychosocial models. The social model of health, which emerged from conceptualising the social dimensions of disability, analyses social, cultural, and political factors, as well as environmental factors.

The biopsychosocial model of health developed by Engel (1977), recognises factors beyond the social and political, and incorporates psychological as well as social, environmental and biological contributors to health. Health is framed as both a scientific construct and a social phenomenon. Under the first proposition, we look at the intersection of biological factors such as age, illness, and gender with psychological factors which include individual beliefs and perceptions. These in turn are affected by social phenomena or realities, and the relationships within and between communities.

Aside from the existence of multiple models of understanding health, different communities may rely on alternative *systems* of understanding. The Western system of medicine, which relies primarily on a biomedical approach to health, is not the only way. Some non-western systems of medicine understand health in a way that is more closely linked to social factors and the community at large (Pettirino, 2017). For example, traditional healers in Cameroon use their knowledge of social problems and the cultural experiences of their communities in their practice (Hillenbrand, 2006). Sickness, in some parts of the world, is viewed as a failure of social and spiritual relationships, and diagnosis involves an examination of both human and supernatural interactions (Pearce, 2000).

Regardless of cultural context, a holistic approach to health during childhood must satisfy both primary and secondary health needs. These needs are defined by Maslow in terms of priorities for the child's survival and wellbeing (Maslow, 1943). Survival includes physiological health and safety from illness and injury, whereas wellbeing includes indicators for agency, the ability to fulfil desires, and a focus on interpersonal relationships during childhood. A sense of belonging, self-esteem, and self-actualisation are important processes for the

fulfillment of wellbeing, which complement the understanding of health from a biomedical perspective.

These differences in how health and wellbeing can be understood, pose a problem when considering how to define and track progress towards global health-related goals. This is because the term progress might have a discrete meaning under different paradigms of health, and thus priorities may be harder to identify or define. Conceptions of what constitutes 'good' and 'poor' health vary across individuals and cultures, and choosing to define health strictly within a biomedical model, limits the potential to discuss the myriad ways in which health and wellbeing are socially determined.

The role of learning beyond schooling

Schooling is a small part of the learning process that takes place over a lifetime. Being in a classroom does not necessarily indicate that learning is taking place, and not being in a classroom does not mean that a person is not learning. Schooling, as defined by curriculum-driven, organised learning, is a type of formal learning. Formal learning is an important part of many children's and young people's educational experience, in particular for those who are in school and engaged in the learning process. Most children from developed countries tend to progress through schooling and spend a significant part of their childhood and adolescence in the classroom. But this understanding of learning as schooling fails to recognise that 264 million children and young people are out of school, and 387 million children of primary school age did not reach the minimum proficiency level in reading (UNESCO, 2018).

There are two other forms of learning to which children and young people are exposed, mostly outside of the classroom. The first of these is informal learning, which is not organised, has no set objectives, and is obtained mostly by experience and self-determination (OECD, 2018). It is driven by children and young people interacting with those around them, whether peers, family or other members of the community. Informal learning is an important way in which children learn social and cultural norms (Golding et al., 2009). Informal learning, in particular throughout early childhood, is an important contributor to school readiness and can reduce or increase learning inequalities prior to formal schooling (Ezati et al., 2018). An example of informal learning would be a young person learning about nutrition and healthy eating through conversation with family at the dinner table. The second, nonformal learning,

is a concept which has been harder to define, and which sits somewhere between formal and informal learning. Unlike informal learning, it is organised to some extent, and may have learning objectives (OECD, 2018), but it does not have formally defined and assessed learning objectives. Examples of nonformal learning include community-based health or sports programs and after-school extracurricular activities. As with informal learning, nonformal learning may be enhanced through self-determination, although it may also be fostered by participation in organised activities which may not have clear learning objectives. As with informal and formal learning, nonformal learning has also the potential to reduce or increase learning inequalities, in particular when offered to complement learning which takes place in formal settings.

Thus, the full scope of learning should not be limited to formal education. Learning inequalities must be addressed over the course of a person's life , particular during their childhood. Limiting the conversation to formal schooling ignores the early years which are important to determine children's learning potential. It also disregards the role of early interventions which take place outside the formal school system, and which tend to be delivered by a combination of informal and non-formal learning modes.

It is also important to recognise that learning takes place in many settings, in organised and unorganised ways, delivered by different stakeholders and in diverse modalities, and which may lead to certification or recognised qualifications. This broad definition of learning is important in understanding the extent of learning inequalities and how these learning inequalities may be socially determined. It also helps us address, in a more comprehensive way, the learning benefits of health, and the potential contribution of learning to health discrepancies.

The health benefits of learning

Learning can have important implications for improving health. From a health economics perspective, learning can impact upon health, as it improves the efficiency by which individuals manage their health and health behaviours (Grossman, 1972; 2000). This efficiency can relate to decisions on health care, as well as timely access to health services. In this productive efficiency approach, individuals use their knowledge and communication skills, to improve not only their own health, but also the health of those for whom they provide care (Grossman and Helpman, 2005). Other health economics models have further

explored the role of learning in enabling individuals to choose from a range of options, to generate different health outcomes (Deaton, 2002). This allocation of acquired knowledge implies that learning can have an impact on health, as it alters the inputs selected by individuals to enhance their health. The rationale here is that more information produces better health results due to healthier choices. Examples of this are knowledge about the damaging effects of smoking; the importance of periodical health care tests; and the components of a balanced diet (Goldman and Lakdawalla, 2005; Glied and Lleras-Muney, 2003).

Whether learning allows individuals to be more efficient in producing positive health outcomes, or whether it is by the choice of different inputs, the economic models present a clear hypothesis about the positive role of learning on health outcomes. What is less clear from these approaches, are the mechanisms by which learning can impact health. Learning can influence key features of self-conception: for instance, on children's and young people's perceptions of their own abilities and worth, which in turn can affect mental and physical health. In particular, learning makes individuals more aware of what they are capable of achieving, and improves their self-efficacy, competencies and motivations. This in turn has important health benefits, in particular for mental health (Bandura, 1997; Eccles et al., 1997). Learning can also influence resilience, making individuals better able to persevere in the face of adverse circumstances, enabling them to cope with ill-health, and in general manage health issues throughout their life (Schuller et al., 2002; Hammond, 2004).

Learning is also associated with the intertemporal choices made by individuals, particularly young people, where they may forego short-term benefits, if there are worse long-term costs (Frederick et al., 2002). In other words, there are learning benefits of health through increased patience and future orientation for individuals. These intertemporal choices are important in addressing health behaviours, whereby the pleasure obtained from smoking, for example, is a function of the intertemporal nature of the benefits obtained from cigarette consumption.

Learning also takes place within contexts, which in turn mediate the health benefits of learning. A person's beliefs about which foods are healthy might be influenced by their family customs, the culture in which they live, and the food advertisements to which they are exposed. A person's concept of a healthy life can be influenced by their friends, the relationships they see in their family, and media portrayal of relationships. Stigma or openness about mental health can stem from culturally rooted ideas. Students receive

information about sex, relationships, and gender from a wide variety of sources, both formally and informally, and within and outside school. Often, informal messages attach shame and stigma to different health topics, like sexuality and contraceptives (Fields 2008). Risks to health emerge from living and working environments and can also be reduced, both by the occupational benefits of learning, as well as the income benefits of learning, which enable individuals to make choices about where to live and work.

When considering the relationship between learning and health, it is important to take into account aspects of social inclusion and social inequalities. Many formal learning contexts are only accessible to a proportion of the population, as this access is mediated by income, schooling, housing, workplace and access to services. Children who are out of school do not have the potential support systems available in schools to promote health, such as school feeding programmes, in-school vaccination campaigns or health education programmes. Families who lack access to quality housing with water and sanitation, still face a high burden in terms of morbidity and mortality. Even with access to schooling and other services, there are large inequalities in resource distribution which subsequently influence individuals' perceptions of their social environment and social cohesion. In turn, this generates stress and a sense of unfairness which may ultimately affect aspects of mental and physical health (Wilkinson and Pickett, 2010). Therefore, unpacking the health benefits of learning requires a deeper understanding of the social determinants of health, which in turn are the social predictors of inequalities in both health and learning outcomes.

Social determinants of health

The *social determinants* of health have been defined by the WHO (2018) as, "the conditions in which people are born, grow, work, live, and age, and the wider set of forces and systems shaping the conditions of daily life". In 2004, WHO Director-General J.W. Lee announced his intention to create a Commission on Social Determinants of Health (CSDH), which was launched in March 2005. The Commission's guiding concepts include a focus on health equity, human rights, and empowerment, particularly for people from socially disadvantaged groups, "to exercise increased collective control over the factors that shape their health" (WHO, 2007, pg.7).

This Commission was created at a time when global attitudes towards health and medicine had been undergoing a change. Organisations were beginning to look beyond medical

interventions, and towards the broader social factors that could be addressed simultaneously, to help meet global health goals. This shift, which gained momentum in the latter part of the 20th century, was rooted in changing attitudes towards medicalisation. In 1980, for instance, the Black Report on Inequalities in Health showed that there were major inequalities in Britain with regard to poor health, and indicated that these inequalities had been widening over time. The report argued that these inequalities could be attributed to social factors influencing health, such as income, employment, education, and housing, and therefore redress would require policies that reduced the existing social inequalities (Black et al., 1980). However, the notions contained in this report, that social inequalities could influence health, were not fully acknowledged until years later, when policymakers and researchers started addressing the social determinants of health to a greater extent.

Understanding the impact that social factors have on the health of individuals and communities is a crucial starting point, but in order to operationalise these ideas, it is important to understand which social factors influence health, and how they do so. The WHO definition of health discusses wider forces and systems, but does not identify them specifically (WHO, 1948). A more detailed definition might identify socio-economic indicators such as food supply, housing, economic and social relationships, transportation, education and health care, as important social determinants (James, 2002). It might also include demographic indicators such as sex, ethnicity and religion (Housseini et al., 2017).

A problem commonly found in the literature is the absence of a set list, of which social factors do or do not influence health. Instead, the term 'social determinants' has referred to both specific features of, and pathways by which, societal conditions affect health (Krieger, 2001). Broadly, the social determinants of health include a society's economic, political and legal systems, different types of resources, access to institutions, adherence to norms and practices, and relationships between and within groups and organisations. This broad understanding, includes structural, as well as proximal determinants ,which are important in understanding how social factors influence health.

Structural determinants are groups, communities or state-wide systems that contribute to social inequalities, for example, national wealth; income inequality; educational status; sexual or gender norms; or ethnic groups (Viner et al., 2012). It may also refer to socioeconomic and political contexts, such as: level of education, occupation, income, class, gender and ethnicity (WHO, 2007). Proximal determinants are, "the circumstances of daily life" (Viner et al. 2012),

such as interpersonal relationships, and access to resources such as food, housing, education and the labour market. Proximal determinants arise out of the inequalities generated by structural determinants, but also may relate to cultural, religious, and community differences. Proximal determinants are likely to be responsible for individual differences in health within groups or communities, whereas structural determinants are likely to be responsible for inter-group differences in health (Viner et al. 2012).

The structural and proximal determinants of health provide a static system by which to understand how social factors impact health, but a more dynamic model requires an understanding of latent pathways and cumulative effects. Latent effects are conditions that occur or develop early on in life and impact upon adult health, regardless of intervention after childhood. Determinants that influence the health trajectories of an individual over a lifetime are called pathway effects. The accumulation of an advantage or disadvantage due to exposure to a particular environment over time is considered a cumulative effect, which combines both latent and pathway effects (Hertzman, 2000).

In most of the literature on the social determinants of health, education has been identified as a structural determinant. However, as previously argued, education is often identified with just formal schooling; and therefore framing this single system of education as a structural determinant of health, is not enough to capture the complexities of the relationships between health and learning. While it is valuable to consider the other ways in which learning might serve as one of the social factors that impact health, it is also important to acknowledge that learning has socially-determined elements as well, that may also shape an individual's health over their lifetime. Individuals' ability to participate in formal and informal learning activities might be affected by their income, their gender, and their social class, as well as by the opportunities offered by the society in which they live. Access to these opportunities is influenced by parental education, income and class, and the resources of the community, as well as by local culture, traditions, and social norms.

In this chapter, we do not look further into the vast literature that identifies many of the social determinants of learning, such as poverty, wealth, income, parental resources, class, gender, ethnicity, culture. Many of the factors viewed as social determinants of health, are also shared factors that influence learning. In other words, neither learning nor health can be isolated or distilled from each other, and from other existing social conditions. Therefore, it is important to establish the social determinants of health and learning within the larger context of global

inequalities.

Situating social determinants in the context of global inequalities

Over the past two decades, there have been positive improvements in reducing global inequalities in educational access, as well as in some health indicators, such as child malnutrition and mortality (United Nations, 2015). Findings on the progress of the Millennium Development Goals (MDGs) up to the 2015 target date show that in almost half of the countries inequality in child malnutrition and child mortality fell, but in the rest of the countries it increased, and in some cases significantly (Wagstaff et al., 2014). With respect to educational access, the primary school net enrolment rate in developing areas had reached 91% 2015, an increase from 83% in 2000 (United Nations, 2015).

Unfortunately, health and learning disparities continue to exist both within and between countries, even in advanced economies. In 2011, a child under five years of age in Uganda was four times as likely to be anaemic compared to a child in Spain (NLIS, 2018). A recent study in England showed that a boy born in an affluent area would outlive a boy born in a poor area by 8.4 years, a 0.8-year increase from 2001 (Dunnell et al., 2018). The average level of primary school completion in 67 low and lower-middle income countries is only 74%. In Burundi, for example, less than a quarter of the poorest children complete primary school (Rose et al., 2017). With respect to learning, research has shown that while poorer children may attend school, they do not necessarily acquire basic literacy skills(Rose and Alcott 2015). In Cote D'Ivoire, 27% of wealthier children learned how to read and write and undertake basic mathematical tasks, but only 4% of poorer children have done so (Rose et al., 2017).

Health and learning inequalities are not driven by distinct and separate sets of factors and determinants. In fact, the underlying causes of these inequalities are similar. They are driven by poverty, income, gender, class, and social structures. Differences in health and learning outcomes are often symptoms of the underlying inequalities of conditions and opportunities, which are socially determined (UNESCO-UIS, 2018).

There are three key messages about inequalities to take away from this chapter: 1) Inequalities start early, affecting and impacting upon different aspects and stages of a person's entire lifetime. In many cases, these inequalities will continue to widen, thus affecting future learning and health outcomes. 2) The intergenerational transmission of advantage is partially responsible for economic and social status, which constrains reductions

in inequalities: a child with low-income parents or caregivers is likely to remain in a low-income environment. Educational outcomes are reflected from one generation to the next; and health outcomes can also be cyclical in nature due to the generational transfer of the social conditions which nurture these inequalities. 3) Finally, context serves as a key mediator for where and how inequalities exist. When we define context, we refer to aspects which include culture, availability of opportunities, access to resources, and religion, as well as socioeconomic conditions. Context is the precise point at which intersectionalities of disadvantage meet, and co-exist.

Global inequalities in early life

Early childhood cognitive ability has been linked to positive health outcomes, and a reduced incidence of disease later in life. For example, studies have found that higher cognitive ability in the early years is related to: a) a decreased risk of heart disease (Batty et al., 2005); b) lower mortality rates (Kuh, 2004); c) healthier eating (Batty et al., 2007); and d) reduced odds of attempting smoking (Aggio et al., 2017).

Early childhood cognitive abilities start to develop from birth, and family and social factors play a key role in determining the nature of this development. Social factors influence learning and development opportunities, and later influence future health and learning behaviours, as well as outcomes. For example, a study undertaken in the USA during the 1960s found that wealthier children would likely hear 30 million more words than their less affluent counterparts by the age of three (Hart and Risley, 1995). In addition, children of poorer families were likely to hear more discouraging feedback per hour, relative to children of more affluent families, where the feedback was more positive. These differences might be due to their main caretaker's working hours, levels of stress and exposure to adversity. Importantly, the authors found that early language differences predicted language skill acquisition later in childhood.

A number of studies have documented that early life inequalities are the result of poverty, risk and vulnerability and that these early life inequalities have: a) implications for learning through childhood (Rose and Alcott, 2015); b) an impact on access to secondary and higher education (Ilie and Rose, 2016); and c) an effect on lifelong learning opportunities (Jackson, 2014). Moreover, early inequalities in health, cognitive and psychosocial development, are reflected in inequalities in health outcomes during childhood and adolescent years (Moore et

al., 2015), as well as in disparities in adult mortality rates (Brown et al., 2009).

One might consider, therefore, whether early years educational interventions, when schooling begins, could mitigate these inequalities. It is possible, for example, that early childhood development programs like Head Start can help close the gap in learning readiness between poor children and their peers (Anderson et al., 2003). Some early childhood intervention programs have been associated with better educational and social outcomes well into adolescence (Reynolds et al., 2001), as well as promoting health later in life (Conti et al., 2015). However, many early childhood interventions require individuals to access resources and institutions, aspects which the poorest households still find challenging (Rose and Alcott, 2015). Moreover, many universal coverage programmes are implemented during schooling years, which fail to integrate children who are out of school or in alternative forms of education. In fact, in contexts where there is a high proportion of children out of school, community-based programmes, such as remedial learning camps in India and Pakistan, seem more effective at supporting the most educationally marginalised children (Alcott et al., 2018). This approach has produced good results in mitigating the consequences of poverty and helping to reduce early life inequalities (Banerjee et al., 2010). In other words, children with better health, nutrition and cognitive skills are likely to benefit more from these interventions (Fryer et al., 2015). Closing the gap, therefore, requires not only universal and early support to mitigate adverse circumstances, but also progressive support throughout childhood, to those with the greatest needs.

Intergenerational Transmission of Opportunities

In both developed and developing countries, it is often the case that opportunities in education are passed along from one generation to the next (Chusseau et al., 2013). Research estimating 50-year trends in intergenerational persistence of educational attainment, found that there were large regional differences: Latin America displayed the highest persistence, and Nordic countries the lowest. However, the global average correlation between a parent's and child's schooling has consistently remained approximately 0.4 (Hertz et al., 2008).

There are several pathways through which opportunities are transmitted intergenerationally, and these pathways can be identified as factors contributing to the persistence of inequalities. Income and wealth are critical pathways, as they indicate the resources and financial means a family has to provide health and learning opportunities for children (Black and Devereux,

2005). Caretaker beliefs, culture and emotional wellbeing are also extremely relevant (Borjas, 1992). However, the focus of this chapter does not permit further exploration of these factors. Instead, we focus on the role of parental education, which encapsulates knowledge, attitudes and behaviours, as well as actions which have shown to be key enablers of opportunities for socioeconomic mobility (Black and Devereux, 2010). While many studies on this topic directly measure parental levels of education, we consider that a child's main caretaker may not always be their parent, as is the case in extended families, child-led families, and in modern day working-parent households, where grandparents are the main caretakers. Education provides parents with the knowledge to foster their children's health and nutrition, and physical and cognitive development in early life. Di Cesare et al., (2013) found that maternal education was associated with improved health and cognitive development for children involved in the Young Lives Study in Peru, and that it further reduced the burden of maternal mental health problems on child development, in particular for mothers with high levels of education. Similarly, numerous studies have found a strong relationship between parental education and child health, such as a reduced risk of being overweight (Eckstein, 2006); proper treatment of health conditions like asthma (Dewalt et al., 2007); and whether or not depressive symptoms are passed from mother to child (Zaslow et al., 2001).

In addition, skills developed through education enable parents to support children with their school work, as well as with the ability to use more complex and diverse language. Cooter's (2006) research showed that parents with difficulties in reading and writing are likely to pass along this low literacy to the next generation. The mechanisms for this transfer include lack of strong language examples; minimal child-parent interaction; and a lack of quality print materials, such as books and newspapers (Cooter, 2006). Leseman and De Jong (1998) note that poor families speak less, and with less variation to their children than their more affluent counterparts. They also suggest that exposure to literacy, the quality of reading instruction, the cooperation between parent and child, and the social-emotional quality of the relationship between child and their family are also important factors (Leseman and De Jong, 1998).

Due to structural conditions, many parents with low levels of education, or no education, may feel isolated from their children's schools, powerless to become involved in their children's education, and aware of the limited capacity they have to support their children (Noe, 1989). In these circumstances, many parents lack a) the knowledge to make informed choices; b) the

confidence to claim their children's rights to health and education; and c) the opportunities to have equal access to institutions. The intergenerational transmission of opportunities needs to be considered within the contexts in which children live and grow, and the multiple social determinants that prevent parents from supporting their children. Understanding these factors underpins the steps that need to be taken to further equality.

Intersectionalities of Disadvantage

The formation of health and learning inequalities in early life and the ways in which opportunities are transmitted intergenerationally, are context specific. Within these contexts, there are many intervening factors, some of which foster further inequalities and others which act to reduce them. It is within these contexts that the social determinants of health and learning inequalities must be framed and understood, and their potential impact hypothesised.

Over the past two decades, many children across sub-Saharan Africa have gained access to schooling for the first time, in part due to the abolition of school fees at primary level. Unfortunately, in many countries, very few of the poorest children have benefited from these universal education policies. In Kenya, for example, only one in five girls from the most marginalised areas of the country made it to Grade 8 after the introduction of fee-free primary schooling in 2003 (Parsitau, 2017). Factors such as disability, remote location or gender, disadvantage the poorest children, in addition to the institutional and social norms that may prevent them from benefitting from these universal approaches.

Long and dangerous journeys are among key factors preventing children in rural areas from attending school, compared to those in urban areas (Frenette, 2006). Children from rural areas are taken less frequently to hospitals or health clinics to receive medical care than those from urban areas (Skinner and Slifkin, 2007; Probst et al., 2002). Climate and the capacity to adapt to it, can also affect learning, and more importantly, health. During winter 2018 in rural northern China, after a change in policy on the use of coal for heating, there were reports of buildings that were so poorly adapted to the weather, that schools held classes outside despite the freezing weather (Global Times, 2017). The use of fuels such as kerosene for heating during the winter months, is also associated with increased levels of pollution, and thus an increased risk of respiratory diseases like chronic bronchitis (Sun et al., 2004; Hammitt and Zhou, 2006). Changes in weather and seasons in many countries, severely affects

accessibility to schools, causing many of the poorest children to completely miss school or have irregular attendance. Children who are most affected, are likely to live in households which lack the means to successfully deal with the risks imposed by climatic and seasonal changes.

Children should not be prevented from reaching their full potential due to gender, physical location or disability. Many children who suffer from physical or cognitive impairments have been able to flourish in contexts where interventions address adequate medical support, technology, and education and training, in order to enable these individuals to achieve active participation in economic and social spheres. While education and health interventions have the potential to move us closer towards equity and social justice, a lack of understanding of the powerful predictors of inequalities, prevents some interventions from achieving their well-meant goals (Sabates and Di Cesare, 2019). In order to create effective interventions that are informed by these social inequalities, we propose a model for understanding how inequalities are reproduced throughout childhood.

Theoretical foundations for understanding the social determinants of health and learning inequalities

The social determinants of health and learning inequalities can be addressed using the theoretical frameworks developed by Feinstein and colleagues, which were based on the foundations of Bronfenbrenner's ecological model (1979; 1986). Bronfenbrenner's 1986 publication, *Ecology of the Family as a Context for Human Development: Research Perspectives*, explored research on the external influences that affect the ways in which families foster the health development of their children. Instead of just exploring parent-child interaction, Bronfenbrenner looks at "once removed" conditions of family environment, such as parents' work; their social network; factors related to relatives; psychological development and circumstances, and other conditions related to the family environment and processes. Bronfenbrenner's work (1986) also explores the environmental patterns and transitions over a person's lifetime, and how these shape (and are shaped) by intra-familial processes. . Individuals exist in multi-layered and interacting contexts, and the social relationships in each of these contexts include structures that are important in the formation of health outcomes (Feinstein et al., 2006).

The models developed by Feinstein et al. (2006) emphasise that children live and grow up within contexts. These contexts have specific features within which factors can have a direct or indirect impact on children's health outcomes and learning potential. Figure 1, taken from Feinstein Duckworth and Sabates (2008), provides a framework for the family context. This context is characterised by the mental health and well-being of the parents or individuals who care for the children, as well as the material resources available within the household. Parental education, income and poverty, as well as the structure of the family can all have an impact on child health and learning through indirect routes and as a product of the child's context.

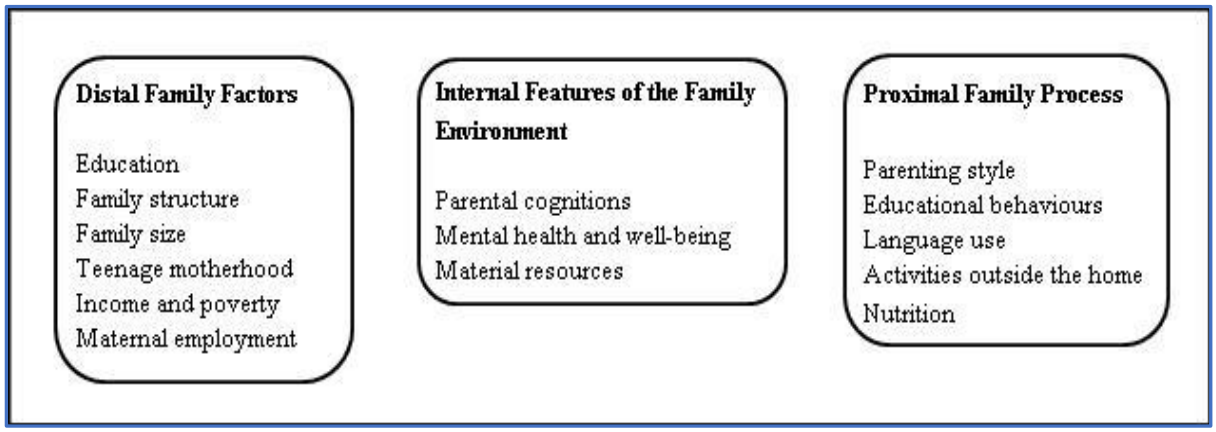

Figure 1: Three categories of family-level influences on child development

Source: Feinstein, Duckworth and Sabates (2008)

Social determinants include the conditions in which children live, and the wider set of forces and systems shaping the conditions of their daily life. In the case of the family context outlined in Figure 1, the characteristics of the context and the more distal factors, combine to represent the conditions in which children are born, for example, a large, poor, rural household. The proximal processes, such as parenting style and use of language, represent the forces that shape the development of children, for instance, the ability of parents to communicate effectively with their children.

Furthermore, in order to capture the systems that shape the conditions of daily life, Figure 2, (Feinstein, Duckworth and Sabates, 2008), provides an example of the interactions between the family and school environments, although as children grow older, other key contexts become important, such as informal learning settings, after-school clubs and peer groups.

From the start of schooling, learning disparities between children could further widen because of the school context, for example, if there is segregation based on income, leading to resource-rich schools only serving those who can afford access.

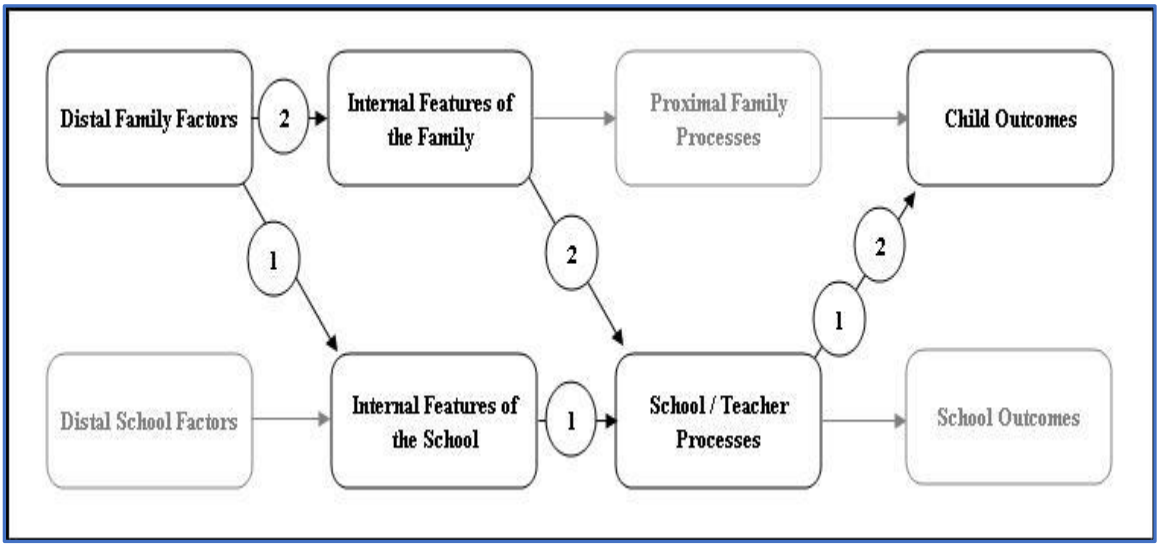

Figure 2. Conceptual model for multi-level interactions between family and school

Source: Feinstein, Duckworth and Sabates (2008)

The additional benefit of the ecological model is that it enables the incorporation of the social determinants of health and learning, as these are affected at the meso and macro levels. In other words, the model accounts for the institutional framework, as well as the systems shaping the formation of different contexts. One example of this is the availability of private and public provision of health and education, which can only co-exist if there are frameworks and conditions for different providers of these services. Some of these institutional settings may further exacerbate the existing inequalities which children may face, while others may be introduced to combat such inequalities.

Although multiple contexts determine the external structures which foster health and learning inequalities, children themselves are important in determining some aspects of their own development, particularly as they transition into adolescence. As discussed by Feinstein et al. (2006), 'the self' refers to the complexities of an individual, not only in terms of biology, but also in terms of their competencies and capabilities (Sen, 1992), resilience and agency (Rutter, 1990). The 'self' also refers to individual capital: a person's human capital (Becker, 2009); social capital (Putnam, 1993); and identity capital (Côté and Levine, 2002). These

elements of *the self* provide children with considerable agency in decision-making, and in their ability to deal with adverse circumstances. In many cases, agency and resilience are underlying processes which determine why children react differently to the same biological or environmental risks. As discussed in Feinstein, Duckworth and Sabates (2008), "early experiences, whether good or bad, do not determine an invariant life path" (p.41). For example, in Werner and Smith's (1992) longitudinal study of high-risk children, one third had made satisfactory life adjustments by adulthood, despite being born into highly disadvantaged circumstances.

Understanding the factors, processes and contexts which have an impact on children's health and learning, is important for the design and implementation of programs and interventions aimed at rectifying initial conditions of inequality and disadvantage. There is not just one social determinant, nor one which operates in isolation. The ecological model proposed by Feinstein, Duckworth and Sabates (2008), and used here, incorporates multiple social determinants which predict the co-existence of health and learning inequalities, within particular contexts. Importantly, the ecological model also enables an understanding of the forces or pathways by which factors can ultimately affect outcomes. Therefore, the ecological model contains the key elements to improve our understanding of the social determinants of health and learning over a lifetime.

Conclusion

Overall, there are three main takeaways from this discussion of an ecological model of the social determinants of health and learning: 1) health and learning do not exist in isolation from other social factors that affect children over the course of their life ; 2) individual factors such as competencies, capabilities, and capital, along with biology, matter as well. This by no means suggests that one should ignore the social inequalities that exist within societies. Instead, it suggests that some children show resilience when faced with challenging circumstances caused by inequalities. 3) Social determinants are a) the conditions of the contexts, b) the forces operating within and between contexts, and c) the systems that shape these contexts. All of these contribute to the reproduction of health and learning inequalities. The social determinants of learning and health are powerful predictors of inequality. Their impact is mediated the contexts in which children live and grow up. To "Leave No Child Behind", and to promote their full development, requires policy approaches and support to

counteract existing structures of inequity. Potential reductions in health and learning inequalities cannot be achieved unless policy and interventions are informed by the complex ways in which individuals interact in their social context. If the ultimate aim of public policies is to reach those with the most need, it is important to address bottlenecks in the implementation of such policies. It is also necessary to promote interventions that occur early in life and at different stages of development, that adequately counteract the social forces within and between contexts that shape children's outcomes.

This chapter has established that learning has the potential to greatly influence health outcomes (Sabates et al., 2014). However, the social factors that prevent children from learning, also have a direct influence on their health. This generates a cycle of disadvantage from which only a few resilient children manage to emerge satisfactorily. Research has moved in the right direction, in terms of identifying the nature of the social determinants of health and the social determinants of learning. However, it is important to note that the social determinants for these outcomes have been investigated independently of each other. Therefore, if progress is to be made in terms of equity in health and education, a more comprehensive and contextually relevant agenda in terms of policy, practice and research, is required, which will w holistically address the social and institutional causes of disadvantage.

References

Aggio, D., Smith, L., Hamer, M. (2017). Early life cognitive function and health behaviours in late childhood: Testing the neuroselection hypothesis. *Journal of Epidemiology and Community Health*, 72(1), 41–46. doi:10.1136/jech-2017-208896.

Alcott, B., Rose, P., Sabates. R, Alonso, M. L., Cherfils, M. (2018) Experience and lessons of learning intervention programmes across the PAL Network members. Policy Paper No. 18/4. REAL Centre, University of Cambridge.

Anderson, L.M., Shinn, C., Fullilove, M.T., Scrimshaw, S.C., Fielding, J.E., Normand, J., et al. (2003). The effectiveness of early childhood development programs. *American Journal of Preventive Medicine*, 24(3), 32–46. doi:10.1016/s0749-3797(02)00655-4.

Bandura, A. (1997). *Self-efficacy: The exercise of control*. New York, NY: W H Freeman/Times Books/ Henry Holt & Co.

Banerjee, A.V., Banerji, R., Duflo, E., Glennerster, R., Khemani, S. (2010). Pitfalls of participatory programs: Evidence from a randomized evaluation in education in India. *American Economic Journal: Economic Policy*, 2(1), 1-30.

Batty, G.D., Deary, I.J., Schoon, I., Gale, C.R. (2007). Childhood mental ability in relation to food intake and physical activity in adulthood: The 1970 British Cohort Study. *Pediatrics*, 119(1), e38–e45. doi:10.1542/peds.2006-1831.

Batty, G.D., Mortensen, E.L., Nybo Andersen, A.M., Osler, M. (2005). Childhood intelligence in relation to adult coronary heart disease and stroke risk: evidence from a Danish birth cohort study. *Paediatric and Perinatal Epidemiology*, 19(6), 452–459. doi:10.1111/j.1365-3016.2005.00671. x.

Becker, G.S. (2009). *Human capital: A theoretical and empirical analysis, with special reference to education*. Chicago, IL: University of Chicago Press.

Black, D., Morris, J.N., Smith, C., Townsend, P. (1980). *Report of the working group on inequalities in health*. London, UK: Stationery Office.

Black, S.E., Devereux, P.J., Salvanes, K.G. (2005). Why the apple doesn't fall far: Understanding intergenerational transmission of human capital. *American Economic Review*, 95(1), 437-449.

Black, S.E., Devereux, P.J. (2010). Recent developments in intergenerational mobility. In O. Ashenfelter & D. Card (Eds.), *Handbook of labor economics* 4B (pp. 1487-1531). San Francisco, CA: Elsevier.

Borjas, G.J. (1992). Ethnic capital and intergenerational mobility. *The Quarterly journal of economics*, 107(1), 123-150.

Bronfenbrenner, U. (1979). Contexts of child rearing: Problems and prospects. *American Psychologist*, 34(10), 844–850. doi:10.1037/0003-066x.34.10.844.

Bronfenbrenner, U. (1986). Ecology of the family as a context for human development: Research perspectives. *Developmental Psychology*, 22(6), 723–742. doi:10.1037/0012-1649.22.6.723.

Brown, D.W., Anda, R.F., Tiemeier, H., Felitti, V.J., Edwards, V.J., Croft, J.B., et al. (2009). Adverse childhood experiences and the risk of premature mortality. *American Journal of Preventive Medicine*, 37(5), 389–396.

Chusseau, N., Hellier, J., Ben-Halima, B. (2013). Education, intergenerational mobility and inequality. In J. Hellier, N. Chusseau (Eds.), *Growing income inequalities* (pp. 227–273). London, UK: Palgrave Macmillan UK.

Conti, G., Heckman, J. J., Pinto, R. (2016). The effects of two influential early childhood interventions on health and healthy behaviour. *The Economic Journal*, 126(596), F28-F65. doi.org/10.1111/ecoj.12420.

Cooter, K.S. (2006). When mama can't read: Counteracting intergenerational illiteracy. *The Reading Teacher,* 59(7), 698-702.

Côté, J.E, & Levine, C.G. (2002). *Identity formation, agency and culture: A social psychological synthesis*. London, UK: Lawrence Erlbaum.

Deaton, A. (2002). Policy implications of the gradient of health and wealth. *Health Affairs*, 21(2), 13-30.

DeWalt, D.A., Dilling, M.H., Rosenthal, M.S., Pignone, M.P. (2007). Low parental literacy is associated with worse asthma care measures in children. *Ambulatory Paediatrics*, 7(1), 25-31.

DeWalt, D.A., & Hink, A. (2009). Health Literacy and Child Health Outcomes: A Systematic Review of the Literature. *Paediatrics,* 124(Supplement 3), S265–S274. doi:10.1542/peds.2009-1162b.

Di Cesare, M., Sabates, R., Lewin, K. (2013). A double prevention: How maternal education can affect maternal mental health, child health and child cognitive development. *Longitudinal and Life Course Studies*, 4(3), 166-179.

Duncan, G., Claessens, A., Huston, A., Magnuson, K., Huston, A.C., Klebanov, P (2007). School readiness and later achievement, *Developmental Psychology*. 43(6), 1428 –1446.

Dunnell, K., Blakemore, C., Haberman, S., McPherson, K., Pattison, J. (2018). Life expectancy: Is the socio- economic gap narrowing?. Resource document. Longevity Science Panel. http://www.longevitypanel.co.uk/_files/LSP_Report.pdf. Accessed 03 May 2018.

Eccles, J.S., Wigfield, A., Scheifele, U. (1997). Motivation to succeed. In N. Eisenberg, (Ed.), *Handbook of child psychology*, 5th edn 3 (pp.1077-1095). New York, NY: Wiley.

Eckstein, K.C. (2006). Parents' perceptions of their child's weight and health. *Pediatrics*, 117(3), 681–690. doi:10.1542/peds.2005-0910.

Engel, G. (1977). The need for a new medical model: a challenge for biomedicine. *Science*, 196(4286), 129–136. doi:10.1126/science.847460.

Evans, D. and Popova, A. (2015). What really works to improve learning in developing countries? An analysis of divergent findings in systematic reviews. Policy Research Working Paper WPS7203. Washington DC: The World Bank.

Ezati, B.A., Madanda, A., Ahikire, J. (2018). Improving learning in rural lower primary school through provision of informal ECD: lessons from an NGO model in Uganda. *Journal of Education and E-Learning Research*, 5(1), 51–59. https://doi.org/10.20448/journal.509.2018.51.51.59. Accessed 03 May 2018.

Feinstein, L., Duckworth, K., Sabates, R. (2008). *Education and the family: Passing success across generations*. Abingdon, OXON: Routledge.

Feinstein, L., Sabates, R., Anderson, T.M., Sorhaindo, A., Hammond, C. (2006). What are the effects of education on health, In R. Desjardins & T. Schuller (Eds.), *Measuring the effects of education on health and civic engagement: Proceedings of the Copenhagen Symposium* (pp. 171-177) Copenhagen, DEN: OECD.

Fields, J. (2008). *Risky Lessons: Sex education and social Inequality*, New Brunswick, NJ: Rutgers University Press.

Frederick, S., Loewenstein, G., O'Donoghue, T. (2002). Time discounting and time preference: A critical review. *Journal of Economic Literature*, 40(2). 351–401. doi:10.1257/jel.40.2.351.

Frenette, M. (2006). Too far to go on? Distance to school and university participation. *Education Economics*, 14(1), 31-58.

Fryer, R., Levitt, S., List, J. (2015). Parental incentives and early childhood achievement: A field experiment in Chicago Heights (Working paper 21477). Cambridge, MA: *National Bureau of Economic Research*. doi:10.3386/w21477.

Glewwe, P. W., Hanushek, E. A., Humpage, S. D., & Ravina, R. (2014). School resources and educational outcomes in developing countries: a review of the literature from 1990 to 2010. in *Education Policy in Developing Countries*, ed. Glewwe, P. University of Chicago Press: Chicago and London.

Glied, S., & Lleras-Muney, A. (2003). Health inequality, education and medical innovation. Cambridge, MA: *National Bureau of Economic Research*. doi:10.3386/w9738.

Global Times. (2017). Gas shortage forces rural students to study outdoors. http://www.globaltimes.cn/content/1078793.shtml. Accessed 05 December 2017.

Golden, S.D., & Earp, J.A.L. (2012). Social ecological approaches to individuals and their contexts. *Health Education & Behavior*, 39(3), 364–372. doi:10.1177/1090198111418634.

Golding, B., Brown, M., Foley, A. (2009). Informal learning: A discussion around defining and researching its breadth and importance. *Australian Journal of Adult Learning.* 49(1), 34-56.

Goldman, D.P., & Lakdawalla, D.N. (2005). A theory of health disparities and medical technology. *Contributions in Economic Analysis & Policy*, 4(1).

Grossman, M. (1972). On the concept of health capital and the demand for health. *Journal of Political Economy*, 80(2), 223–255. doi:10.1086/259880.

Grossman, M. (2000). The human capital model, In A.J. Culyer & J.P.Newhouse (Eds.), *Handbook of Health Economics* (pp. 347–408). Amsterdam, NL: Elsevier.

Grossman, G.M., & Helpman, E. (2005). Outsourcing in a Global Economy. *Review of Economic Studies*, 72(1), 135–159. doi:10.1111/0034-6527.00327.

Hammitt, J.K., & Zhou, Y. (2006). The economic value of air-pollution-related health risks in China: A contingent valuation study. *Environmental and Resource Economics*, 33(3), 399-423.

Hammond, C. (2004). Impacts of lifelong learning upon emotional resilience, psychological and mental health: fieldwork evidence. *Oxford Review of Education*, 30(4), 551-568.

Hart, B., & Risley, T.R. (1995). *Meaningful differences in the everyday experience of young American children*. Baltimore, MD: Paul H Brookes Publishing.

Hertz, T., Tamara, J., Piraino, P., Sibel, S., Nicole, S., Verashchagina, A. (2008). The inheritance of educational inequality: International comparisons and fifty-year trends. *The B.E. Journal of Economic Analysis & Policy*, 7(2), 1-48.

Hertzman, C. (2000). The case for an early childhood development strategy. *ISUMA*, Autumn, 11-18.

Hillenbrand, E. (2006). Improving traditional-conventional medicine collaboration: Perspectives from Cameroonian traditional practitioners. *Nordic Journal of African Studies*, *15*(1), 1-15.

Housseini Shokouh, S.M., Arab, M., Emamgholipour, S., Rashidian, A., Montazeri, A., Zaboli, R. (2017). Conceptual models of social determinants of health: A narrative review. *Iranian Journal of Public Health*, 46(4), 435–446.

Ilie S., & Rose, P (2016). Is equal access to higher education in South Asia and sub-Saharan Africa achievable by 2030?. *Higher Education,* 72(4), 435-455.

Jackson, S. (2014). *Challenges and inequalities in lifelong learning and social justice*, London, UK: Routledge.

James, S. (2002). Social determinants of health: implications for intervening on racial and ethnic health disparities. Paper presented at the Minority Health Conference 2002, University of North Carolina, 1 March 2002.

Krieger, N. (2001). A glossary for social epidemiology. *Journal of Epidemiology & Community Health*, 55(10). 693–700. doi:10.1136/jech.55.10.693.

Kuh, D. (2004). Childhood cognitive ability and deaths up until middle age: a post-war birth cohort study. *International Journal of Epidemiology*, 33(2), 408–413. doi:10.1093/ije/dyh043.

Leseman, P.M., & de Jong, P.F. (1998). Home literacy: Opportunity, instruction, cooperation and social- emotional quality predicting early reading achievement. *Reading Research Quarterly*, 33(3), 294-318.

Maslow, A.H. (1943). A theory of human motivation. *Psychological Review*, 50(4), 370–396.

Moore, T.G., McDonald, M., Carlon, L., O'Rourke, K. (2015). Early childhood development and the social determinants of health inequities. *Health promotion international*, 30(2), ii102-ii115.

Noe, R. (1989). Accelerating the 'Pace' Against Illiteracy: Parent and Child Education. *Yale Law & Policy Review*, 7(2), Article 6. http://digitalcommons.law.yale.edu/ylpr/vol7/iss2/6. Accessed 03 May 2018.

Nutrition landscape information system (NLIS) (2018). World Health Organisation resource document. http://www.who.int/nutrition/nlis/en/. Accessed 03 May 2018.

OECD. (2018). Recognition of non-formal and informal learning. OECD resource document. http://www.oecd.org/education/skills-beyond-school/recognitionofnon-formalandinformallearning-home.htm. Accessed 03 May 2018.

Parsitau, D.S. (2017). Brookings, How girls' education intersects with Maasai culture in Kenya. https://www.brookings.edu/blog/education-plus-development/2017/07/25/how-girls-education-intersects-with-maasai-culture-in-kenya/. Accessed 03 May 2018.

Pearce, T.O, (2000). Death and maternity in Nigeria. In M.Turshen (Ed.), *African women's health* (pp. 46-61). Trenton, NJ: Africa World Press Inc.

Pettirino, F. (2017) Retos metodológicos de la asistencia médica intercultural. Importancia de las disciplinas sociales y humanísticas en el área de la salud. Keynote Speaker at the VI International Congress on Intercultural Health and Wellbeing. Edo de Mexico. Mexico.

Probst, J.C., Moore, C.G,, Baxley, E.G., Lammie, J.L. (2002). Rural-urban differences in visits to primary care physicians. *Family Medicine-Kansas City*, 34(8), 609-615.

Putnam, R.D. (1993). The prosperous community. *The American prospect*, *4*(13), 35-42.

Reynolds, A.J., Temple, J.A., Robertson, D.L., Mann, E.A. (2001). Long-term effects of an early childhood intervention on educational achievement and juvenile arrest. *JAMA*, 285(18), 2339-2346. doi:10.1001/jama.285.18.2339.

Rose, P., Alcott, B. (2015). Health and Education Advice & Resource Team, How can education systems become equitable by 2030?,. http://www.heart-resources.org/wp-content/uploads/2015/08/Rose-and-Alcott-2015.pdf?x30250. Accessed 03 May 2018.

Rose, P., Sabates, R., Alcott, B., Ilie, S. (2017). The Education Commission, Overcoming inequalities within countries to achieve global convergence in learning. http://palnetwork.org/wp-content/uploads/2017/09/Overcoming-Inequalities-within-Countries.pdf. Accessed 03 May 2018.

Rutter, M. (1999). Psychosocial resilience and protective mechanisms. In J. Rolf, A.S. Masten, D. Cicchetti, K. H. Nuechterlein, S. Weintraub (Eds.), *Risk and Protective Factors in the Development of Psychopathology* (pp. 181-214) Cambridge, CAM: Cambridge University Press.

Sabates, R., Di Cesare, C., Reilly, B. (2014). Does educational exclusion explain health differentials among children? An empirical analysis of children in Ethiopia using Young Lives data. In S. McGrath & Q. Gu (Eds.), *Routledge Handbook on Education and Development* (pp 182-195). London, UK: Routledge.

Sabates, R. and Di Cesare, C. (2019). Can maternal education sustain or enhance the benefits of early life interventions? Evidence from the Young Lives Longitudinal Study. *COMPARE: A Journal of Comparative and International Education*. https://doi.org/10.1080/03057925.2019.1653171

Schuller, T., Brassett-Grundy, A., Green, A., Hammond, C., Preston, J. (2002). *Learning, continuity and change in adult life. wider benefits of Learning Research Report*. London, UK: The Centre for Research on the Wider Benefits of Learning, Institute of Education.

Sen, A. (1992). *Inequality Re-Examined*, Cambridge, MA; Harvard University Press.

Skinner, A.C., & Slifkin, R.T. (2007). Rural/urban differences in barriers to and burden of care for children with special health care needs. *The Journal of Rural Health*, 23(2), 150-157.

Sun, Y., Zhuang, G., Wang, Y., Han, L., Guo, J., Dan, M., Hao, Z. (2004). The air-borne particulate pollution in Beijing—concentration, composition, distribution and sources. *Atmospheric Environment*, 38(35), 5991-6004.

UNESCO GMR. (2014). *Teaching and learning: Achieving quality for all*. Paris: UNESCO.

UNESCO-UIS. (2018). Handbook on measuring equity in education. Resource document. UNESCO & UNESCO Institute for Statistics. http://uis.unesco.org/sites/default/files/documents/handbook-measuring-equity-education-2018-en.pdf. Accessed 03 May 2018.

UNESCO. (2018). GEM Report - Accountability in education: Meeting our commitments. Resource document. Global Education Monitoring Report. http://gem-report-2017.unesco.org/en/home/, Accessed 3 May 2018.

United Nations (2015). The Millennium Development Goals Report 2015. Resource document. United Nations. http://www.un.org/millenniumgoals/2015MDGReport/pdf/MDG%202015%20rev%20(July%201).pdf, Accessed 03 May 2018.

Viner, R.M., Ozer, E.M., Denny, S., Marmot, M., Resnick, M., Fatusi, A Currie, C. (2012). Adolescence and the social determinants of health. *The Lancet*, 379(9826), 1641–1652. doi:10.1016/s0140-6736(12)60149-4.

Wade, D.T., & Halligan, P.W. (2004). Do biomedical models of illness make for good healthcare systems?. *BMJ*, 329(7479), 1398–1401. doi:10.1136/bmj.329.7479.1398.

Wagstaff, A., Bredenkamp, C., Buisman, L.R. (2014). Progress on global health goals: Are the poor being left behind?. *The World Bank Research Observer*, 29(2), 137–162. doi:10.1093/wbro/lku008.

Werner, E.E., & Smith, R.S. (1992).*Overcoming the odds: High risk children from birth to adulthood*. Ithaca, NY: Cornell University Press.

Wilkinson, R., & Pickett, K. (2010). *The spirit level: why equality is better for everyone*, London, UK: Penguin UK.

World Health Organisation. (2016). Life expectancy increased by 5 years since 2000, but health inequalities persist. Resource document. World Health Organisation. http://www.who.int/en/news-room/detail/19-05-2016-life-expectancy-increased-by-5-years-since-2000-but-health-inequalities-persist. Accessed 3 May 2018.

World Health Organisation (2018). The social determinants of health. http://www.who.int/social_determinants/en/. Accessed 03 May 2018.

World Health Organisation. (2007). A Conceptual Framework for Action on the Social Determinants of Health. Resource Document. World Health Organisation. http://www.who.int/social_determinants/resources/csdh_framework_action_05_07.pdf. Accessed 3 May 2018.

World Health Organisation. (1948). *Preamble to the Constitution of the World Health Organisation as adopted by the International Health Conference, New York, 19–22 June, 1946*. New York, NY: World Health Organisation.

Zaslow, M.J., Hair, E.C., Dion, M.R., Ahluwalia, S.K., Sargent, J. (2001). Maternal depressive symptoms and low literacy as potential barriers to employment in a sample of families receiving welfare: are there two-generational implications?. *Women & Health*, 32(3), 211-251.