

# The Role of Socioeconomic Determinants in Children's Health

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## Keywords

Social determinants of health · Child health · Health inequities · Socioeconomic disparities in health · Ethnic and racial minorities

## Abstract

After many years of being portrayed as a major achievement of the health service, child health in Portugal has recently come under scrutiny after an increase in infant deaths. Commentators have pointed to unequal access to healthcare and poorly monitored pregnancies of migrant mothers as possible causes. In this context, we revisit the socioeconomic determinants of children's health, reflecting on how various factors such as parental income and education, immigration, ethnicity, and social policies exert their influence on child health. Socioeconomic determinants have long been recognised, but their importance is often overlooked in the field of child health. The authors discuss theoretical approaches such as the worlds of influence framework proposed by UNICEF and consider various pathways through which socioeconomic determinants shape children's health, namely, the so-called material, psychological, behavioural, and structural pathways. The authors then move on to consider the empirical literature, drawing attention to factors such as life course, socioeconomic disadvantage, deprived neighbourhoods, poverty and income, household and family characteristics, parental education, ethnic diversity, and

immigration. Finally, policy implications are considered, with the authors arguing that a multisectoral and coordinated approach, embracing both social and public health interventions, is required. Guaranteeing universal access to services that promote healthy early child development – including early childcare and education and efforts to reduce childhood poverty – is central to promoting equity. Classic public health policies, such as health surveillance and prevention programs, especially targeted at the preconception period, gestation, and childhood, are also important. In geographical areas with a strong immigrant presence, specific programs designed to facilitate integration should be available. If we are to improve child health and make sure that none are left behind, we need to focus attention on a broad range of socioeconomic determinants.

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## O papel dos determinantes socioeconómicos na saúde das crianças

### Palavras Chave

Determinantes sociais da saúde · Saúde das crianças · Iniquidades em saúde · Desigualdades socioeconómicas em saúde · Minorias étnicas e raciais

## Resumo

Depois de vários anos a ser retratada como uma história de sucesso, a saúde infantil em Portugal voltou recentemente ao debate público com um ligeiro aumento das mortes infantis. Alguns comentadores apontam, como possíveis causas deste aumento, o acesso desigual a cuidados de saúde e o facto de existirem gravidezes mal vigiadas na população migrante. Neste contexto, revisitamos os determinantes socioeconómicos da saúde das crianças, refletindo sobre como vários factores, tais como o rendimento e educação dos pais, a imigração, a etnia e as políticas sociais exercem a sua influência na saúde infantil. Os determinantes socioeconómicos são reconhecidos há muito tempo, mas a sua importância é frequentemente negligenciada no domínio da saúde infantil. Começa-se por discutir abordagens teóricas como os mundos de influência proposto pela UNICEF e consideram-se vários caminhos através dos quais os determinantes socioeconómicos influenciam a saúde das crianças, nomeadamente materiais, psicológicos, comportamentais e estruturais. De seguida, aborda-se a literatura empírica considerando factores como trajetórias de vida, desvantagem socioeconómica, bairros carenciados, pobreza e rendimento, atributos familiares, educação dos pais, diversidade étnica e imigração. Por fim, o trabalho debruça-se sobre as implicações políticas, defendendo que é necessária uma abordagem multissetorial e coordenada, abrangendo intervenções sociais e de saúde pública. Garantir o acesso universal a serviços que promovam o desenvolvimento saudável da primeira infância – incluindo educação e cuidados na primeira infância, bem como esforços para reduzir a pobreza infantil – é fundamental para promover a equidade. Políticas clássicas de saúde pública, como programas de vigilância e prevenção em saúde, especialmente direcionadas para o período pré-concepcional, gravidez e infância, são também importantes. Em áreas geográficas com forte presença de imigrantes, devem estar disponíveis programas específicos concebidos para facilitar a sua integração. Se queremos melhorar a saúde infantil e garantir que nenhuma criança é deixada para trás, precisamos de concentrar a atenção num conjunto alargado de determinantes socioeconómicos.

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## Introduction

Child health in Portugal has often been portrayed as a success story [1, 2]. Certainly, the country's performance in reducing infant mortality, with rates halving every 9 years between 1974 and 2010, is impressive, likely

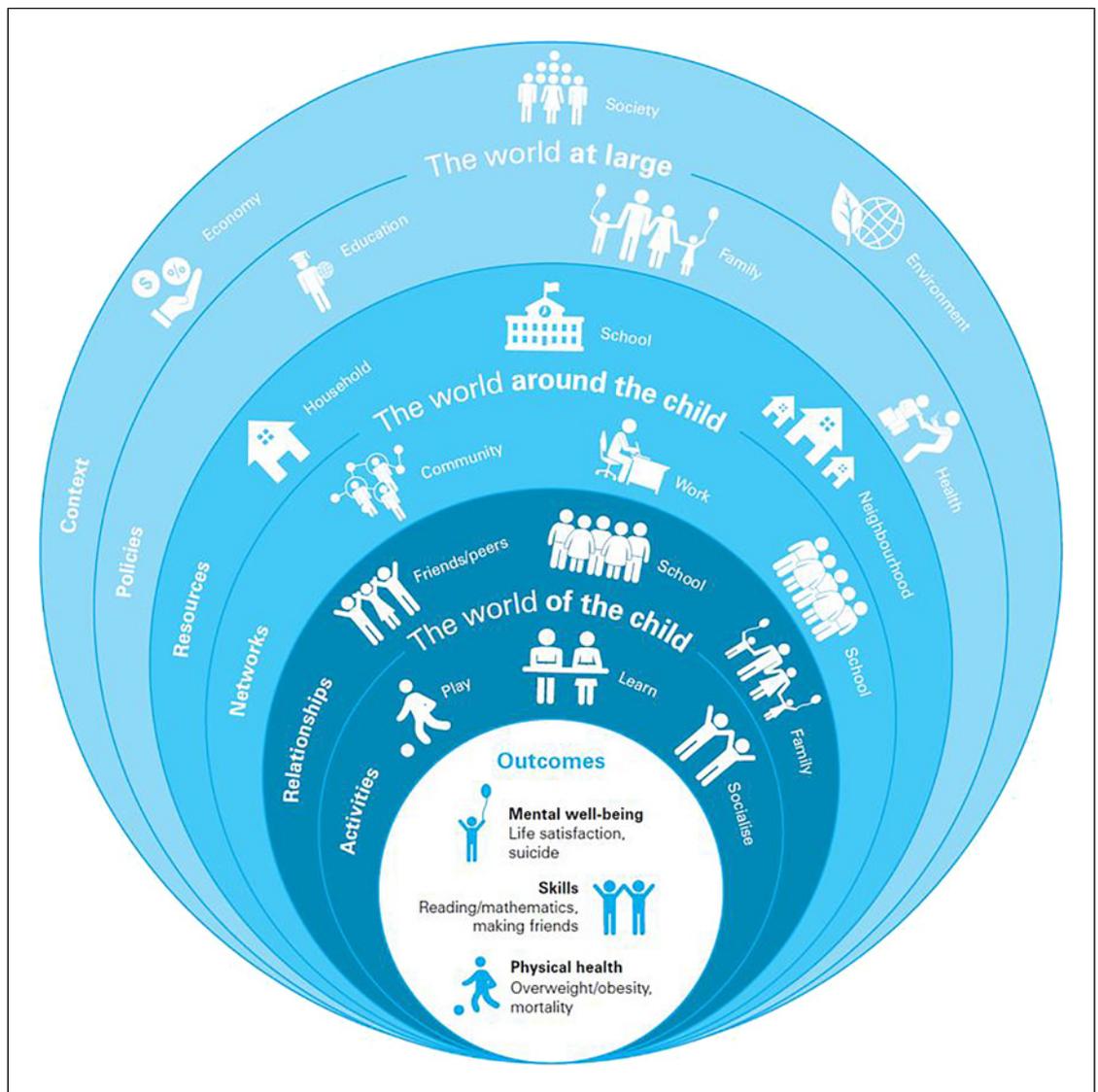
resulting from improvements in socioeconomic conditions and better access to primary care and hospital services [1, 3]. However, very recently there have been concerns about increased infant deaths, with some commentators pointing to unequal access to healthcare and poorly monitored pregnancies of migrant mothers as possible causes [4, 5].

This seems an opportune moment to reflect on the socioeconomic determinants of children's health. Health gains and losses are not evenly distributed. We need to look closely at distributional issues and how particular patient groups are affected by social and environmental circumstances. Immigrant populations and clusters of socioeconomic vulnerability are common features in various geographical areas in Portugal as, indeed, they are throughout Europe. Non-white individuals usually face a greater disadvantage compared to those that are white [6, 7]. Moreover, some clinical conditions are more prevalent among certain ethnic groups [8]. Ultimately, however, if we are to improve child health and make sure that none are left behind, we need to focus attention on a broad range of socioeconomic determinants.

The social determinants of child health (SDCH) have long been recognised, but their importance is often overlooked. Globally, social determinants are responsible for most childhood illnesses and deaths, exerting their influence on child health through the interrelationship of socioeconomic factors, such as parents' income and education, with health beliefs and behaviours [9]. SDCH describes the social and economic context in which children are born, grow up, live, and eventually work [10]. Being largely distinct from medical care, they can be influenced by public policy [10, 11]. Related concepts to understanding how socioeconomic determinants affect child health are social gradients and health equity. A social gradient generating a health gradient has been described: the lower the socioeconomic status, the worse the health status [12]. Health equity occurs when all children have the opportunity to reach their full potential and no one is disadvantaged from achieving such potential because of socioeconomic position [11, 13, 14].

Socioeconomic inequities emerge early in life, starting *in utero*, and persist into adulthood and across generations [15]. Significant associations between most socioeconomic factors studied and a wide range of health, healthcare and developmental outcomes in children have been reported in the literature [16–19].

In what follows, we first look briefly at theoretical approaches to examining the impact of socioeconomic



**Fig. 1.** Framework of social determinants of health for children. Reproduced from UNICEF Innocenti. Worlds of influence: understanding what shapes children’s well-being in rich countries. Innocenti Report Card 16. Innocenti, Florence: UNICEF Office of Research; 2020.

factors on children’s health. We then move on to consider the empirical literature, drawing attention to factors such as life course, socioeconomic disadvantage, deprived neighbourhoods, poverty and income, household and family characteristics, parental education, ethnic diversity, and immigration. Our focus is on literature that draws on data from high-income countries with universal access to healthcare. Finally, policy implications are considered. We argue that a multisectoral and coordinated approach, embracing both social and public health interventions, is required.

### Modelling the Impact of Socioeconomic Factors on Children’s Health

Children are particularly vulnerable to the socioeconomic circumstances they live in. They depend on their carers and are unable to modify their socioeconomic circumstances, at least during infancy. UNICEF conceptualised an SDCH framework, as depicted in Figure 1 [20], based on the Dahlgren and Whitehead Social Model of Health [21]. The child lies at the centre of the framework; health and other life outcomes are influenced

by three contexts: his/her world, the world around him/her and the world at large [20]. All the SDCH are inter-related, both within and between circles.

The *world of the child* consists of the closest determinants to individual health: the child's biology, activities such as playing and learning, health behaviours, and lifestyle but also the child's proximal interactions. These interactions occur mainly with carers/parents but also with friends/peers and significant subjects at school. The *world around the child* consists of economic resources (the socioeconomic status of the household, which is determined by carers' work, income, and education); the quality of the neighbourhood; and networks influencing the child's health directly or indirectly (e.g., the community, childcare and school, parents' workplace policies towards flexible schedules, and parental leave). Finally, the *world at large* refers to macro-level political, social, economic, environmental, educational, and healthcare policies. These are the structural factors that influence individuals' and communities' socioeconomic circumstances: childcare and schools, health services and broad health policies, labour laws, welfare, and social support systems [15, 20].

Some authors have proposed theories on the *pathways* through which social determinants influence children's health [22, 23]. Pearce et al. [15] summarised those theories into four pathways: material, psychosocial, behavioural, and structural.

The *material pathway* refers to material living conditions. Family income influences housing conditions like warmth and exposure to air pollutants, access to nutritious foods and to healthcare – all of which influence health [15]. There is evidence of a social gradient between lower family income and disability, serious or long-standing illness, and premature death [24]. This gradient is also evident for the risk of attention deficit hyperactivity disorder, severe limiting illness, and sleep-limiting wheeze [9].

In the *psychosocial pathway*, social disadvantage has a stressful impact on the mental health of carers and their children, which in turn affects health behaviours and health status. Long-term exposure to stressful circumstances, such as low income and job insecurity, has a cumulative risk for mental health and premature death, a risk that is higher for low social class populations [24]. Biologically, psychosocial factors affect physical health through neuronal and endocrine mechanisms, raising heart rate, blood pressure, and alertness [25].

The *behavioural pathway* refers to lifestyle, such as diet, physical activity, leisure, smoking, and alcohol consumption. Parenting skills and parents' health-related behaviours have a direct role in children's health, especially during prenatal and early postnatal years. [15]. Even

as they age, health behaviours are still strongly influenced by cohabitants and peers. For example, mealtime family interactions and parents' dietary options are associated with childhood obesity and thus cardiovascular risk [26].

In the *structural pathway*, the political, socioeconomic, commercial, cultural, and environmental structures in a community or society (depicted in the outer layers of Fig. 1) determine the distribution of resources and are considered by some authors to be the primary causes of health inequity [27]. Healthcare and childcare services, educational systems, housing policies, taxation, redistribution of income, and social welfare are powerful tools that can create or reduce inequity across populations and exert their effect on other pathways [15].

### Social Determinants of Health throughout the Life Course

Early childhood is increasingly recognised as a key period in the individual's later physical, mental, and social capacities [28]. This period starts as early as pre-conception and determines many adult life characteristics [29]. Brain development is highly sensitive to external factors during early infancy. Nutrition, external and cultural stimuli, neighbourhood, carers' education, and occupation, all affect physical and cognitive development, as well as social and emotional development. Suboptimal biological and developmental conditions during this period may have irreversible consequences in later life, influencing the risk of obesity, heart disease, and mental health problems [12].

Disadvantage persists across the life cycle and is transmitted to the next generations; this has been linked to the life trajectories of children, through a cumulative process of continuous interaction between exposures [29]. Children's circumstances not only affect their health but also shape adult circumstances and adult health by determining the resources available throughout life [30].

The influence of socioeconomic factors seems to increase in significance as children age. In a systematic review, 58% of evaluated associations measured during pre- and perinatal life were significant, 54% in early infancy, 64% in toddler age, and 68% in preschoolers [16]. This suggests a cumulative effect of these factors throughout childhood. Stressful socioeconomic disadvantage can influence gene expression through mechanisms of DNA methylation, thus modelling health since childhood and even prenatally [31, 32].

There are critical transitions in life that can shift individuals and societies into a more or less advantaged

trajectory: material and emotional changes during early childhood, entering school, moving on to the next educational level, entering the labour market, changing jobs, leaving parents' home, starting a family, and retiring [24]. However, influential factors change with age. The mother or the main carer is particularly important during pregnancy and early infancy, while school and neighbourhood become increasingly influential later in childhood and adolescence [15, 24]. Social and public health policies must offer safety nets adapted to these critical milestones.

### Socioeconomic Determinants and Child Health

General health, perinatal and infant mortality, and developmental outcomes have been shown to be influenced by socioeconomic factors [16, 33]. Tuberculosis, obesity, anxiety disorders, hypertension, poisoning, premature birth, low birth weight, and perinatal hypoxia and trauma are the conditions that have shown greater socioeconomic inequities in the literature [34]. Evidence of this link has also been found for under-five mortality, asthma, dental caries, lower cognitive function, visual impairments, mental health problems and for specific causes of death later in life (coronary heart disease, respiratory disease, stroke, and stomach cancer) [16, 28, 29].

Associations of *socioeconomic disadvantage* with hospital care have also been found. Children of lower socioeconomic backgrounds face higher rates of hospitalisation [17, 18] and longer lengths of stay [19, 35]. Higher risk of hospitalisation for infectious diseases in children 0–2 years old associated with low family income and mother's low education level has also been reported [18]. Additionally, an increased risk of admission to intensive care units, and thus, worse health status, has been correlated to childhood poverty [36].

Deprivation and health differences vary together across regions and neighbourhoods [37]. Several hotspots of socioeconomic inequities have been described, including in Portugal [38]. The physical and environmental quality of neighbourhoods – like housing quality, water and sanitation, air pollution and greenness – have a direct influence on health [12]. Furthermore, community resources, such as existing schools, childcare and healthcare centres, other support structures, and employment availability, all play a role [20].

Household and family characteristics also have an important impact on child developmental and health outcomes. Housing tenure; parents' income, education

and employment; and family material deprivation are among household-level social factors showing the most significant associations [16].

SDCH reciprocally influence and are influenced by child health. The theory of *health selection* describes the effects of ill health on education and employment [15]. Poor health affects the ability of parents to have stable jobs and to obtain income, which in turn may lead to material deprivation, food insecurity and poor household and neighbourhood conditions [39, 40]. This is true not only in the scenario of parental illness but also in a family with an ill child having to deal with work absenteeism and healthcare expenses.

A recent example of the reciprocal influence between health and social determinants is the SARS-CoV-2 pandemic. Lower class jobs, household crowding, poor household conditions, low incomes, and low education level led to an increased risk of infection [41, 42]. On the other hand, the pandemic itself and the lockdowns caused unemployment and reduction in families' income, weight gain due to physical inactivity and unhealthy diet, mental health problems, education inequities and disruption of access to healthcare services, including perinatal and paediatric care, with disadvantaged groups being disproportionately affected [41, 43].

*Childhood poverty* is a strong predictor of physical and emotional health, cognitive development, and health behaviours in adulthood, such as smoking [44] and unhealthy diet [45]. If present during adolescence, these behaviours tend to persist into adulthood [29, 46]. Being born in poverty and continuing poverty throughout life confers a high risk of poor health in adulthood [29]. This means that policies directed at reducing health inequities must be accompanied by interventions that tackle childhood poverty.

*Education* is a strong predictor of socioeconomic status and health gradients and exerts its effect across generations. Adolescents with poor school performance are at higher risk of unprotected intercourse, tobacco, drug and alcohol use, and shorter life expectancy [47]. Parents' higher educational level is associated with healthier diet and better educational attainment of children, which in turn is related to higher income, more skilled jobs, and living in safer neighbourhoods [47–49]. Mother's education level is particularly important as caring for children is still a predominantly female role worldwide. Mother's education is associated with better birth weight and weight- and height-for-age and to earlier preventive care in children [50].

Parental education determines parental professional occupation, the household's income, and health. The effect of *parental occupation* is mediated through income,

work stress, and physical and mental health, with a greater impact among children younger than 6 years [51]. The effect is reportedly larger for the father's occupation compared to the mother's [49].

Socioeconomic disadvantage has also been linked to ethnic health inequity, starting before birth. Children of black mothers have higher rates of preterm birth, low birth weight, and infant mortality [52, 53]. These have been linked to poverty, lower maternal education, and social stress, which are more prevalent among black women [53]. However, ethnic disparities persist independently of maternal age, education, and adequacy of prenatal care [52, 53]. The risk of preterm birth remains high among black women who themselves were low-birth-weight children born in impoverished settings and who experienced improvement in economic status, suggesting that in utero exposure to poverty programs future reproductive physiology [52].

Ethnic disparities in health generally go on throughout life [54]. However, the literature has contradictory results. Adolescents in the UK of Indian, Pakistani, Bangladeshi, and black descent tend to be more exposed to socioeconomic disadvantage than white adolescents, but these groups reported better mental health, even after adjustment for socioeconomic circumstances, which the authors related to parental support and discipline, family connectedness and cultural diversity [55]. Despite this advantage, these ethnic groups showed a trend towards worse physical health, with higher systolic blood pressure, lower lung function, higher likelihood of asthma, and higher rates of overweight, which the authors attributed to the biological inheritance of previous generations.

Ethnic diversity is closely linked with *immigration*. Immigrant children and their parents usually have worse health conditions and higher rates of treatable diseases [56, 57]. Several other factors contribute to health inequity among immigrants, including reduced access to healthcare services, language barriers, and lack of access to citizenship and welfare, especially among the undocumented [57]. Children of immigrant families are more exposed to poverty, poorer nutrition, housing insecurity, and mental health stressors. In addition, immigrant parents and their children have lower education attainment, which further aggravates the socioeconomic and health gaps [7, 57].

### Policy Implications

Policies aimed at reducing the health gap among children should focus on the period before conception and on the various dimensions seen to influence socio-

economic circumstances and health across the life cycle, starting with parents' background [29]. In this sense, policies that include both social and public health interventions in a multisectoral and coordinated fashion [58] must be the new paradigm to address the reciprocally amplifying effect of health and socioeconomic risk factors. As advocated in the Marmot Review, there is a case for *proportionate universalism*: a combination of universal services and programs targeted at the most disadvantaged groups according to the level of disadvantage [59]. This calls for action at multiple levels: government, community, child health organisations, and health workers [60].

Guaranteeing universal access to services that promote healthy early child development is a central aspect, both at individual and community levels. This should include promotion of physical and mental health, healthy behaviours, parenting and carer support, childcare, primary healthcare, nutrition, education, psychological and social support [28, 29].

Social policies should include childhood poverty reduction efforts. Income-support interventions have demonstrated a positive effect on birth weight outcomes and children's mental health [58], as well as fewer hospital attendances, higher enrolment rates in preschool, and welfare services utilisation [61]. These include interventions like financial counselling, unconditional and conditional cash transfer, and income tax credits [58, 61].

Education is one of the most powerful SDCH. Ensuring universal early childcare and education, especially for the most disadvantaged, is of great value in promoting equity [62]. Moreover, educational opportunities for parents with low schooling levels, especially mothers, and measures that support labour market engagement [63], are additional protective strategies acting through either improved health literacy or higher incomes.

The setting where children contact healthcare services is an important aspect. Working in the community, namely, through home visits, not only facilitates delivery of healthcare but also the understanding of the child's socioeconomic background [63]. Primary healthcare centres are a privileged setting for their proximity and health promotion environment [63]. Hospitalisation is also an opportunity to screen for adverse SDCH and engage children and carers in structured social and health support programs that include follow-up after discharge and referral to community services [64]. Schools, where children spend a large part of their day and many social vulnerabilities can be detected, are also privileged sites for intervention, with public health nutrition programs directed at schools showing evidential promise [65].

There is also a role for classic public health policies [15, 58]. These include health surveillance and prevention programs, especially targeted at the preconception period, gestation, and childhood. Such programs already exist in Portugal and must be maintained, improved, and monitored and their universalism ensured.

In geographical areas with a strong immigrant presence, specific programs designed to facilitate integration of these groups are crucial. These should include local language learning, information on citizenship, and social support services. Enrolment in targeted public health programs is important. A culturally competent healthcare approach should include bilingual/bicultural health professionals or cultural mediators [66].

Deprived small areas should be specifically targeted. For that purpose, working in partnership with municipal and civil parish administrative councils, primary healthcare centres, local social support agencies, and NGOs offers opportunity for identifying local needs and acting accordingly. Ensuring access to healthcare, childcare, education, welfare, employment, transportation, and decent housing should be a basic goal.

It is also important that the National Health Service adopts a health equity centred model of care. Among other aspects, this involves incorporating an adjusted

risk-scoring system that weighs SDCH in payment models, based on the realistic assumption that socially disadvantaged children may need differentiated health-care interventions [67].

Finally, evaluation of the interventions is essential to monitor their impact in reducing health inequities and to match new challenges, such as immigration from new origins [29].

### Conflict of Interest Statement

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### Author Contributions

Conception and design: T.R. and J.P.; writing of the original draft: T.R.; and writing and critical review: J.P. Both authors revised the manuscript and approved the final version.

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