

Review of Structural Social Determinants of Health in Early Childhood Development

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Development is a dynamic and continuous phenomenon that is under the influence of various factors forming a complicated multidimensional system together. Any impairment in these factors can lead to impaired development in children, which is one of the most common problems in children. Therefore, this study provides a brief overview of these factors and the way they affect early childhood development. A brief review was performed in databases including Google scholar, PUBMED, Proquest, SID, Magiran, Iranmedex, Irandoc with following keywords: child development, income, occupation, education, employment, boy, girl, gender, sex, social class, Race and Ethnicity. All of article was reviewed then categorized based on WHO model.

Among the papers reviewed, most of the studies were about employment, education, and income and most of them investigated these risk factors in terms of socioeconomic status. Structural factors of social determinants of health had a close relationship with each other, and they had affected development through each other. Given that, only few studies on structural factors, except for socioeconomic factors, have been conducted and little attention has been paid to the way these factors affect child development, further studies in this area are required to propose a model in order to better understand the interaction between these factors.

Keywords: child development, structural social determinant, income, occupation, education, employment

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Introduction

As the next generation, children are considered the most significant foundations for development. Accordingly, paying attention to their growth and development is of great importance (1,2). Early child development, which includes physical, social/

emotional, and language/ cognitive domains, will have a significant impact on children's subsequent life chances and health (3). Therefore, any kind of impairment in child development can have a negative impact on children's health and

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society. In general, the children who lack developmental features and skills proportional to their age are considered to have a developmental delay (4,5). According to the American Academy of Pediatrics, developmental disorders are among the most common problems in children, which are also in the list of priorities of America's healthcare system (6). In developing countries, at least 200 million children, for some reason, do not reach their full growth and developmental potential (7). In United States, Jamaica, Bangladesh, Pakistan, India (in different areas among children under 2 years of age), Iraq, Brazil, and the Netherlands, this rate has been reported 15-20%, 15%, 8%, 15%, 1.5-2.5%, up to 10%, 3.3%, and 12.5% respectively, which suggest the importance of the issue (6), (8-11). Moreover, the prevalence of different dimensions of developmental disorders such as gross motor, fine motor, problem-solving and social-personal domains has been reported 3.87%, 4.04%, 4.31%, 4.15%, and 3.69% respectively (12). However, health care providers identify only one third of the children with developmental problems (1). On the other hand, since children above 2 years of age are not provided with vaccination services, families would less refer to centers to receive other health care services, and monitoring children's development would be difficult (13-15). Moreover, most of the studies have investigated policy measures during childhood (16) and preschool periods, and less attention has been given to earlier ages (17). While 8% of preschool children suffer from developmental disorder in one or more areas from birth to age six. These findings are indicative of the importance of time in diagnosing and treating developmental disorders (18). Furthermore, several studies have shown the short- and long-term benefits of early interventions in children's developmental disorders from different individual, family, economic, and social aspects, putting great emphasis on early diagnosis of such disorders. Early diagnosis and therapeutic and rehabilitative interventions will be associated with better outcomes (19-22). In addition to identifying the children with a developmental delay and carrying intervention, interventions and training

programs such as perceptual-motor training can improve developmental outcomes in healthy children (23).

As a dynamic and continuous phenomenon, development is under the influence of many psychosocial (24), biological and genetic (genetic inheritance) factors (25-27). However, it cannot be specifically explained by only one concept such as biology, and a complicated and multidimensional system is required. According to Bronfenbrenner's theory, child development is under the influence of several environmental layers and changes or conflicts within each layer can be also transferred to other layers. In this pattern, family is the most durable, most effective, and closest environmental layer that affects all aspects of child development (28). It is also observed that the relationship between biological and environmental factors (29) become stronger and more and more intertwined concurrent with child development, and a safe environment enables children to take advantage of their full developmental potential (16). The relationship between different environmental layers and its impact on health can be explained and classified through the conceptual framework of psychosocial factors of the WHO Commission on Social Determinants of Health (CSDH). According to this framework, the key factors affecting health include socio-political, structural, social and intermediate factors. Structural and socioeconomic factors include income, education, employment, social class, gender, and race/ethnicity. Intermediate factors include living environment conditions (dwelling place, purchasing power, and working environment), psychosocial conditions (psychosocial stress, stressful living conditions and interpersonal relationships, stress management and social support), behavioral and biological factors (nutrition, physical activity, alcohol and tobacco use, and genetic factors), and health system-related factors (30) as figure (1). Development is no exception. This study aims to investigate and classify effective structural factors in child development based on a conceptual framework of the WHO Commission on Social Determinants of Health.

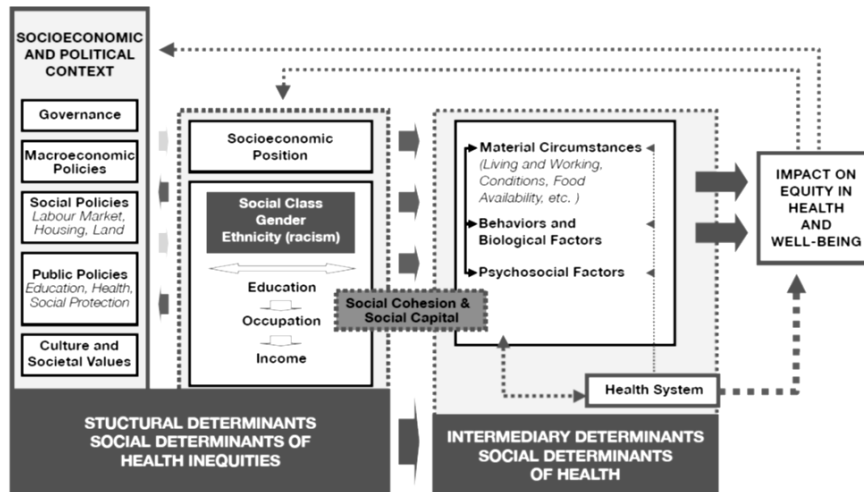


Fig 1. Final form of the CSDH conceptual framework (Solar & Irwin, 2010)

Methods

This study is a brief review of previous studies on development and aims to investigate effective structural factors in child development and the way they affect. The search is carried out using the following keywords in Google scholar, PUBMED, Proquest, SID, Magiran, Iranmedex, Irandoc databases. Papers with findings including structural factors (income, employment, education, social class, gender, and race) were included in the study. The study population consisted of health children without congenital malformations. The papers in preterm and low birth weight infant population were excluded from the study.

Structural Factors: Despite the positive relationship between income, employment, and education, each one of these factors enjoys various levels of stability over time and predict family processes and children's adjustment in various ways (17).

Income: Studies have shown that the children who live below the poverty line will suffer from developmental delay or learning disability 1.3 times more than non-poor children (31). This relationship

is observed since these children are 6 months old (32). Poverty can have a profound impact on children's cognitive development and long-term poverty may cause significant damage (33). It has been observed that poverty will increase children's exposure to biological and psychological risk factors, and it will also lead to children's developmental disorders due to behavioral changes and changes in the structure and function of the brain as figure(2) (34). Income is in fact an indicator of socioeconomic status that is directly associated with individuals' financial resources (30). In addition to lack of financial resources, insufficient income in families is also a stressor for parents which causes problems for them in taking care of their children (35). Recent evidence and studies show that parental especially maternal stress, anxiety, and depression are associated with developmental disorders in children (36). Moreover, the children living in poverty are more susceptible to family problems, violence, separation from their families, instability, and chaotic families, and they also have less social support (37).

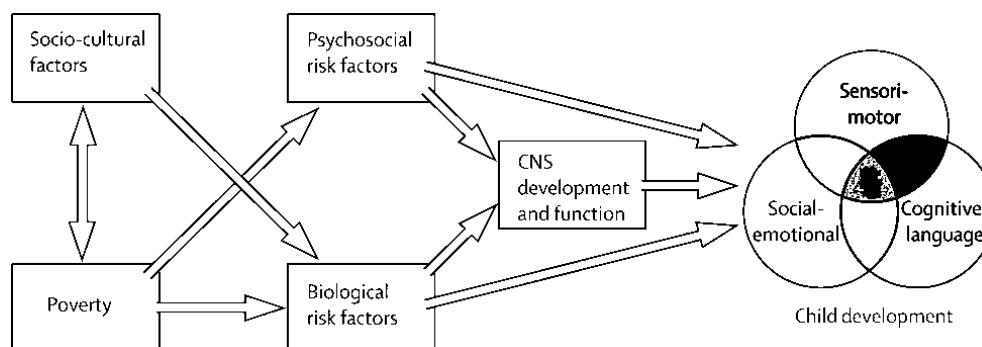


Fig 2. Pathways from poverty to poor child development

Education: Education is considered as one of the indicators and standard components of socioeconomic status, which influences employment and income of families (38-39). In fact, education level has an impact on income through employment (40). Education level is a factor that has an impact through access to information and skill level in using new knowledge (30). Various studies have investigated the relationship between parental education level especially maternal and child development and its dimensions separately or as part of socioeconomic factors. Low level of maternal education is related to poor cognitive development in children, and this relationship becomes stronger as children grow up (41-43). Maternal education less than 12 years can increase the risk of a developmental delay in children by 1.58 times (44). It is observed that children born to mothers with lower level of education receive a lower score in fine motor skills, problem solving, and socio-personal areas (45). On the other hand, the mothers with higher level of education spend more time on feeding their children, encourage their children's physical development more, participate more in social and educational interactions, talk with their children, and consequently improve child development (46). Moreover, children's vocabulary size at the age of 5 is associated with maternal (10,44).

Employment: Parental employment-especially maternal-on child development has a wide range of impacts, and many studies on this issue have been conducted. As explained above, since employment has a close and positive relationship with income (47), it can indirectly influence child development through income (48). Moreover, it is observed that unemployed women have a lower level of education and they are more likely to be poor, single at delivery, and unaccompanied by fathers (43). On the other hand, the personality traits of an employee that employers value and pay wages based on them (independent of the earned income) are highly effective in children's life chances. These traits include skill, making efforts, honesty, good health status, and trustworthiness (49). Maternal employment can have an impact on the language score of preschool children (50). However, only a few studies have shown the positive impact of maternal employment on child development, and most of them have been indicative of the negative impact of this factor (51). The impact of maternal employment can be different, depending on a child's age. For example, maternal employment in the first year of the child's life was related to decreased verbal ability at 3-4 years of age; however, this

relationship had not been observed at 2-3 years of age if the mother was employed (52). Paternal employment has also been partially studied. It has been observed that paternal employment has also been related to the turning points of development in children under 6 years of age (24).

Social Class: Social class is a description of a communication mechanism (property and management) that explains how economic disparities are formed and affect health (30). In all countries at all income levels, there is a social gradient in health that runs from top to bottom of the socioeconomic spectrum, and in general, each class enjoys better health than its lower class (53).

Gender: A few studies have investigated the probability of having developmental disorders with children's gender. For example, the impact of employment on developmental disorders has been more evident in male children (31,54).

Race/Ethnicity: First, it is noteworthy that race and ethnicity are merely a social structure, and they do not mean a specific biological difference among different races (55). However, being in a specific racial and ethnic group affects these individuals in different ways. In terms of health, these individuals have poorer health conditions and outcomes than the average of the society (2). Most of the children living in these families suffer from poverty (56). As mentioned in the previous sections, this issue is a risk factor for children's poor (undesirable) development. Further studies are required in order to better understand the complexity of the impact of biological, psychological, social, and environmental factors on ethnic minority children's development (57).

Discussion

Despite diagnostic and therapeutic advances, developmental delay in children is still considered a global health issue in developed and developing countries (10). In recent years, much attention has been given to early and timely diagnosis of developmental disorders, and greater emphasis is placed on diagnosis of these disorders at younger ages, especially during infancy and childhood. This is due to the fact that at this age child development is fast (58-60). However, health care providers identify only 30% of the cases. Therefore, the American Academy of Pediatrics recommends that developmental monitoring should be part of children's routine preventive care visits (61). On the other hand, child development is not a linear process and it can change in the course of time, which necessitates periodic screening (62). Since

screening is a difficult task in all children, screening of high-risk children seems logical. Family members and environmental factors are important factors that can impact child development (29). The important role of family in children's growth and development has been recognized since the mid-1930s (63). The following factors influence child development: Family factors including family or caregiver health status, child's relationship with caregiver, mother's or caregiver's depression (64), nursery-related factors (registration, number of days attending nursery per week), resource-related factors (income, family resources, and social resources), and social factors (understanding and children's nurturing environment) (10).

It is noteworthy that in most cases, developmental disabilities cannot be related to only one factor (9,65). In fact, a set of factors are responsible for developmental disorders. Factors such as employment, education, and income (which were separately studied) are of completely different natures; however, in most studies, they are mentioned together in the form of socioeconomic factors and when one case is investigated, the other case is automatically pointed out, too. Socioeconomic status is one of the factors influencing higher prevalence of

developmental disorders in children (66). These factors are accompanied by a wide range of family and dwelling place characteristics such as frequency of stressful events, exposure to toxins and violence, school quality, and parental care (37,67).

Conclusion

This study showed that structural determinants had an effect on child development. Child with developmental delay is a cause of a huge number of problems, thus early diagnosis and timely referral is highly important and can have the most benefit for families and children with developmental disabilities. Thus, identifying children at risk and beginning interventions before the event or progress of problem appears to be the best and most rational solution.

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