

PARENTAL SOCIOECONOMIC STATUS AS A PREDICTOR OF PHYSICAL AND MENTAL HEALTH OUTCOMES IN CHILDREN – LITERATURE REVIEW

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SUMMARY – Parental socioeconomic status is a multidimensional concept of special importance for the growth, development, health outcomes and education of children. Its definition generally refers to the amount of parents' income, their employment status and level of education. Hence, lack of economic resources and poverty of parents affect all aspects of the child's life, health outcomes and education, as well as his/her social inclusion. Accordingly, the consequences of a reduced parental socioeconomic status leave long-term effects on their children. Therefore, in order to create interventional programs for children of parents with low income and lower socioeconomic status, as well as with lower level of education, it is important to address the direct aspects of poverty. This review contributes to the evidence indicating that the parental socioeconomic status is highly influential in determining the child's physical and mental health and future outcomes including his/her academic achievements and education, as well as the parameters of his/her physical abilities, cognitive function and fundamental neurobiology affecting brain development.

Key words: *Social class; Income; Educational status; Academic success; Cognition; Neurobiology*

Introduction

Socioeconomic status (SES) is a multidimensional concept of special importance for researchers who are engaged in physical and mental development of children¹. According to most authors, the individual's socioeconomic status is determined by the three main parameters: household income, education and occupa-

tion². Numerous studies confirmed the relationship between parents' low SES and poor health, as well as slow-moving children development, spreading through the entire span from infancy to adulthood^{1,3}. Variances in experiencing stress are differentially associated with growing up in more or less well-resourced households^{4,5}.

Researchers have never reached agreement on what constitutes SES. Therefore, it is defined in various ways through different studies. Sometimes it is defined as someone's economic position in society, social class (someone's importance in society), financial income, and human or social capital¹. The term SES generally refers to the level of wealth/poverty, which is reflecting

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income, employment status and level of education. However, occupation and employment status were more often used as indicators than financial income⁶. This model was used as a groundwork for a research in Germany, where it was recommended to utilize data on education, occupation and household income as indicators for calculating the socioeconomic status index, dividing SES into three groups: low, medium and high⁶. At the same time, in a study from UK, SES was determined by a sophisticated coding system wherein the individual interest was used as its indicator⁷.

In the countries with low gross domestic product (GDP), poverty is a constant, spreading through several generations. Due to low GDP, it is known that Bosnia and Herzegovina suffers from a high rate of poverty, which affects children in particular, since they are the most vulnerable part of the society. Consequently, children are seldom included in preschool programs, receiving lesser education and lower quality of health care. For this reason, there is the need for creating interventional programs, facilitating education and providing better health care of low SES children to avoid adverse effects of poverty and to improve their outcomes.

The aim of this review is to point to the devastating effects of low SES on children's prosperity including their upbringing and social inclusion, as well as physical, mental and social health outcomes. Hence, we undertook a relevant recent literature review to find evidence supporting our standings.

Socioeconomic Status and Children's Health

Years of research have resulted in collecting data that indicate the relationship between SES of adults and their health. Accordingly, low SES was significantly associated with the risk of getting a health disorder in adults⁸. In general, children from low income families often suffer from various diseases, are more susceptible to infections, and have a higher morbidity and mortality rate. Concerning the correlation between SES and physical health, it is interesting that any SES improvement is usually associated with some additional health benefits³. Obviously, low SES is primarily associated with inadequate nutrition, poor health insurance and inferior medical care⁹. Low income is also an important factor, which considerably contributes to the individuals' lower opportunities for

professional progress and greater risk of unemployment. In addition, it increases chances of excessive consumption of alcohol, tobacco and other addiction substances, as well as problematic social behavior, often reducing physical activity¹⁰. Therefore, it may result in the occurrence of various physical, as well as mental disabilities.

Risks of Brain Developmental Disorder

Parental SES can affect the prenatal, as well as postnatal development of a child. Children coming from lower SES families are usually at an increased risk of preterm birth, contracting some deficit or disability at birth, and having low birth weight¹¹. Women who were pregnant during the war, war occupation and/or natural disasters delivered children with a significantly greater prevalence of diseases as compared to those who did not live in such conditions¹². Diseases were primarily related to heart problems and mental personality disorders. Later, these children had a higher risk of contracting diseases such as schizophrenia, heart attack or stroke¹³. Considering that individuals of lower SES are more inclined to risky health behavior, it can be concluded that the children of such parents would have a greater risk of developmental disabilities. The consumption of tobacco, alcohol or addiction drugs during pregnancy can cause permanent damage to the child's brain. Parents with lower SES often have poor quality diet and worse medical care⁹. Consequently, deprivation of this kind can lead to cognitive impairment of their child at an early age¹⁴.

Correlation between stress and negative outcomes has been confirmed more than once. Studies have shown that stress is consistently proven as a mediating variable between SES and health¹⁵. People with lower SES are experiencing more stress too. If they are employed, their job is mostly connoted with poorer and more dangerous working conditions. Moreover, they often find themselves in hopelessly bad financial situation that can only increase the level of stress³.

It turns out that parental SES is significantly associated with the level of development of the child's brain. Bilateral voxel-based morphometry (VBM) analysis revealed a positive correlation between SES and volume of gray matter in the defined areas of the brain, such as the hippocampus, the temporal gyrus and the occipito-temporal area¹⁶. Some authors have

found out that family income may moderate the relation between the white matter structure and the child's cognitive flexibility¹⁷. Low SES is also associated with reading problems and low verbal abilities in children¹⁸. This result suggests that SES may have most to do with language skills, while it is not directly linked to the child's cognitive abilities¹⁶.

Considering the above, parental stress, unbalanced lifestyle and low SES are factors affecting a variety of prenatal and postnatal brain developmental disorders. Such children belong to the neurological risk group and they should be promptly incorporated into the early rehabilitation program to stimulate their brain plasticity. Therefore, parental SES affects a large number of medical, cognitive and socio-emotional outcomes in children, beginning before birth and continuing into adulthood¹⁹.

Socioeconomic Status and Mental Health

A negative correlation between SES and mental health has been constantly reported. In other words, the lower the parental SES, the higher is the risk of the child's mental difficulties. Theoretical models and evidence suggest that persistent poverty has an effect on the children's mental health, particularly aggressive behavior, more than current poverty²⁰. Children coming from lower SES families are more likely to manifest some psychosomatic symptoms or non-adaptive behavior²¹. Considering this, two opposing theories attempt to explain the association between SES and mental health differently. According to the theory of social causes, mental disorders occur due to poverty and some additional factors²². On the contrary, according to the theory of social selection, those with mental disorders can gradually find themselves suffering lower SES.

Studies have confirmed that preschool and school-age children suffer from various forms of stress within their immediate family²³. Stress, psychological harassment, various forms of abuse, and conflicts between spouses are factors that significantly affect the growth and development of every child.

Differences in stress experience are most likely responsible for the development of brain areas of importance for the children's cognitive skills^{4,5}. There is also evidence that stress itself, mostly affecting the hippocampus and the limbic system, has a significant impact on the child's emotions and additionally causes exces-

sive production of cortisol, which negatively affects the telomeres of chromosomes, and eventually manifests in faster cell deterioration and shortened lifespan²⁴.

Children from lower SES families are often victims of bullying by their classmates due to different shortcomings that are visible to other children. Awkward situations usually occur when choosing school equipment, personal clothing, or just school snack if the child even can afford it.

Mental abuse is one of the worst forms of violence, but it may be variously reflected individually, having different consequences. For school-age children, it is most often manifested through withdrawal, anxiety and depression. Boys in particular can further boost the development of aggression, which is expressed in the moments when they feel superiority over some of their peers. It has also been proven that children who have suffered various forms of abuse and harassment often become abusers themselves²⁴.

The Role of Socioeconomic Status in Academic Achievements of Children

The term 'school success' is usually understood as an ordinary school performance primarily expressed in the quantitative value, gaining average school mark of 5.0, while the qualitative value of the acquired knowledge is neglected in most cases. However, school performance is usually influenced by many factors such as mutual family relations, which are dependent on various individual, family and social characteristics. Researchers have confirmed that growing up in a materially adverse conditions and unsupportive environment has negative impact on school success²⁵. High economic demands on parents often result in stress and the accompanying emotional and mental problems, such as anger, anxiety and depression, usually leading to poorer family relations and frequent marital conflicts, even a divorce. All these affect the quality of parenting, which is ultimately strongly reflected on the quality of children's social adjustment in general and on their health in particular²⁶. Parents of lower SES more frequently practice negative educational methods such as neglect, punishment or even abuse, and are not able to monitor the development of their children adequately. Unlike them, parents with higher SES and overall social position usually invest in their children more, expressing more warmth and respect for the

child, and avoiding physical punishment. In addition, they are more involved in daily activities of their children and are more concerned with their success.

Taking into consideration the definition of SES in terms of parental education, it is obvious that better educated parents like those with a college degree are actually more aware of the role of self-care and care about their children. In general, such parents lead healthier life, exercise more, drink less alcohol, consume less cigarettes and work in less hazardous jobs, resulting in a less stressful life for parents, and ultimately for their children too.

Parental SES may also affect the child's educational outcomes through a number of pathways²⁷.

The combination of poverty and poor school achievement is often the reason for dropping out from school and gaining lower levels of education. Therefore, it is associated with poorer chances of getting a steady job and facing more difficulties, making it impossible to leave the cycle of poverty²⁸. Consequently, those persons have to be motivated to continue their education. Early intervention is essential for children coming from low SES families. Therefore, it is important to provide support to such children helping them develop the skills that they would not be able to learn without support of their community. Considering this, late intervention is also important, especially if the early one was lacking. Hence, students who have already decided to discontinue their education will be able to receive basic means of education, such as textbooks, transportation, and extra learning through local communities. In addition, a greater number of free of charge public lectures on various topics can attract those who cannot afford to attend education programs regularly. A system providing free kindergarten to all children regardless of their parents' SES would be especially helpful.

Correlation between Socioeconomic Status and Health Outcomes

Many relevant studies have repeatedly linked low parental SES to children's poor health outcomes^{27,29}. Some authors even speculate that poor health and poor medical condition of a parent or a child can lead to low SES, mainly due to covering costly medical expenses³⁰. Accordingly, it seems that health outcomes are strongly connected to SES, and *vice versa*. A re-

search by Goodman and Currie showed that 32.4% of children from poor families suffered from some forms of chronic disease, in comparison to 26.5% of children from families that were not characterized as poor. Accordingly, the authors conclude that there is a strong evidence for links between parental SES and child's health²⁷.

Depending on how a particular study defines SES, it can be proclaimed as good or bad predictor of health outcomes in children. Some authors obtained results indicating that SES defined as household income did not have a major impact on the children's health outcomes, while the level of mother's education was highly related to their health^{20,31,32}.

The constant struggle to ensure life existence and living on the edge of society lead to the depletion of resources designed to cope with stress and resorting to ineffective coping strategies. The consequence of low SES is in most cases the lack of information about health and healthy behavior as a direct result of the low level of education. At the same time, people living in poor conditions perceive more barriers to the achievement of goals of everyday life.

Socioeconomic Status and Physical Abilities

Poverty and everyday existential problems may frequently cause high stress levels. The results obtained by Rogers *et al.* point to a healthier life, as well as lower morbidity and mortality of people belonging to higher SES³³. In their research, Grunberg *et al.* proved that people experiencing higher levels of stress at work also had more problems with alcohol abuse, but only if they thought that it was an effective way to cope with stress³⁴.

Socioeconomic status is also associated with the perception of the possibilities for practicing physical activities. People with lower SES are considered to have a huge number of hindrances for physical activities that are related to the time, motivation, equipment, skills, health and social support³⁵. When parental SES is concerned, the same can be said for their children too. Empirical findings support the idea that lower SES people are rarely engaged in physical activities affecting their abilities, when compared to higher SES ones³⁶. SES is a good predictor of coping with the amount of physical activities, as well as patterns of diet and quality of sleep³⁷. People with higher income have

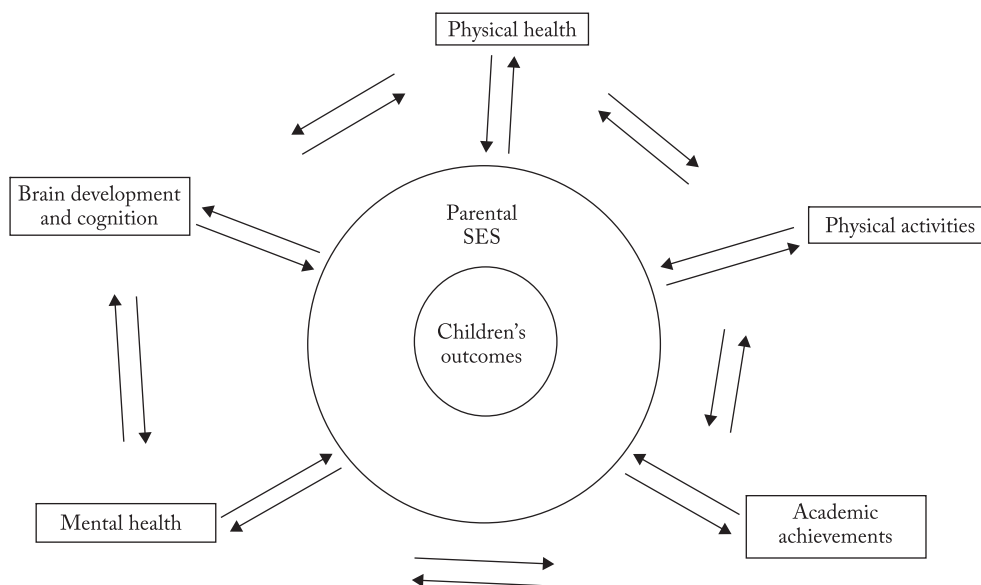


Fig. 1. The relationship and interdependence between parental socioeconomic status and different parameters mutually influencing children's outcomes.

more options for spending money on sports activities, preparing healthy diet and having quality sleep, bringing benefits through improved productivity and better quality of life³⁸.

This review was intended to find literature evidence for the relationship between parental SES and children's outcomes, as well as between children's physical/mental health and future outcomes such as their academic achievements and education. It was also trying to investigate the possible interdependences among these different parameters mutually influencing children's outcomes (Fig. 1). Finally, we believe that our review also contributes to mounting suggestions from the literature indicating that the parental SES is highly influential in determining the child's physical abilities, cognitive function, and fundamental neurobiology affecting brain development. To support these findings, additional research is needed.

Conclusion

Socioeconomic status is a multidimensional concept determined by the three main parameters: household income, education, and occupation. The interconnection between parental SES and children's outcomes is well confirmed, underlining the serious consequences of living in poverty. Parental SES can affect devel-

opment of the child's brain, relating family income with enlargement of the brain white matter and cognitive flexibility of the child. Children coming from lower SES families are likely to manifest some psychosomatic symptoms or non-adaptive behavior, indicating the correlation between SES and mental health.

Growing up in a materially adverse conditions and unsupportive environment influences school success and children's academic achievements negatively. Principally, physical health outcomes are strongly connected to SES, but the level of mother's education may be more important to children's health.

People with lower SES, as well as their children are also considered to have a huge number of hindrances for physical activities affecting their abilities.

Accordingly, there is a need of creating interventional programs, as well as facilitating social support and education of children with low parental SES to improve their outcomes and avoid adverse effects of poverty.

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Sažetak

RODITELJSKI SOCIOEKONOMSKI STATUS KAO POKAZATELJ FIZIČKOG I MENTALNOG ZDRAVSTVENOG STANJA I USPJEHA NJIHOVE DJECE – PREGLED LITERATURE

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Roditeljski socioekonomski status višedimenzijски je koncept od posebne važnosti za rast, razvitak, zdravlje i zdravstveno stanje, kao i za obrazovanje njihove djece. Po svojoj se definiciji roditeljski socioekonomski status načelno odnosi na imovinsko stanje i primanja roditelja, stanje njihove zaposlenosti i razinu obrazovanja. Sukladno, nedostatak ekonomskih sredstava i siromaštvo roditelja utječu na sve vidove djetotova života, njegovo fizičko i mentalno zdravstveno stanje i obrazovanje, kao i na uključenost u društvenu zajednicu. Stoga posljedice slabog socioekonomskog statusa roditelja dugotrajno utječu na njihovu djecu. Zato je važno utvrditi izravne uzroke siromaštva kako bi se načinili intervencijski programi namijenjeni djeci roditelja s niskim primanjima i slabijim socioekonomskim stanjem, kao i nižom razinom obrazovanja. Ovaj pregled doprinosi spoznajama koje upućuju na značajnu povezanost roditeljskog socioekonomskog stanja s odrednicama djetetova zdravstvenog stanja i budućeg uspjeha, kao i čimbenicima njegovih psihofizičkih sposobnosti, kognitivnog funkcioniranja i temeljne neurobiologije od utjecaja na razvitak mozga.

Ključne riječi: *Socijalni stalež; Prihod; Obrazovni status; Akademski uspjeh; Spoznaja; Neurobiologija*