

Results: There is convincing evidence that early life stress is related to complex diseases later in life, including their transgenerational transmission. This is caused by the major impact of early life stress on the development of the stress networks, up to the cell level (epigenetics). Not only poverty, child abuse and school absenteeism, but also bullying, digitization, social media and performance pressure are recognized as stressful upbringing situations. The impact is caused by allostatic stress overload of the whole organism, 'wear and tear'. Allostatic stress overload is the result of the interactions between stressor, personal stress pattern and social environment, displayed in the Allostatic Load Model (ALM).

Conclusions: Early life stress is a biomedical explanation for the relationship between unfavorable upbringing situations and unhealthiness, including its transgenerational transfer. In the prevention of diseases later in life, it is necessary to pay attention to stress in early life. The ALM shows the relationship between all influencing factors and health.

Short statement: Preventive youth health care should focus on identifying toxic stress and find ways to reduce the negative impact of stress on health outcomes.

S08 - Session 8 - Determinants of health outcomes

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Maternal Educational Mobility and Childhood Overweight and Obesity: The Generation R Study

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Abstract

Background and aims

Although maternal education is strongly associated with childhood overweight/obesity, little is known about the effect of maternal education mobility on overweight/obesity. Our study aimed to investigate the association between maternal educational level, maternal education mobility and overweight/obesity at child-age ten years.

Methods

We analyzed data of 4,131 children from the Generation R Study, a population-based cohort in the Netherlands. Maternal education level was measured by questionnaires during pregnancy and at child-age six years, and categorized into low, middle and high. Maternal education mobility was categorized into upward mobility, stable-low, stable-middle and stable-high. Children's weight and height were measured at age ten years (Mean age: 9.8 ± 0.3), and overweight/obesity was defined using the cut-offs of International Obesity Task Force. Generalized linear models were performed to calculate the odds ratio (OR) of upward mobility, stable-low, stable-middle and stable-high (reference) maternal education levels for overweight/obesity after adjustment for potential confounders.

Results

There were 703 of children's mothers having low education level at baseline among 4,131 children in this study. 8.8% of children's mothers showed upward mobility regarding their education level between enrollment to child-age six years, while 10.2%, 52.4% and 28.6% had stable-low, stable-middle and stable-high education levels, respectively. The prevalence of childhood overweight/obesity at age ten years was 24.0%, 33.3%, 17.2% and 8.8% for above mentioned groups (P<0.05). When compared with high maternal education level at baseline, low and middle maternal education level were associated with higher risks of overweight/obesity [OR=4.13 (3.16-5.41); OR=2.07 (1.65-2.59)]. When compared with stable-high education level between enrollment to child-age six years, upward mobility, stable-middle and stable-low maternal education level were associated with higher risks of overweight/obesity [OR=2.83 (2.04-3.92); OR=2.00 (1.58-2.53); OR=4.66 (3.47-6.25)].

Conclusions with key message

Children, whose mothers have a stable-low educational level, have the highest risks for overweight/obesity at age ten years. Upward educational mobility attenuate the risk in the subgroup of mothers who had a middle or low education level during pregnancy.

Statement

Social-pediatric and public-health nurses and physician are social advocate for youth and can increase the awareness for the importance of parent-education and other sources of social capital.

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The relationship between the development of overweight and cognitive functioning at young adulthood

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Background and aims

Evidence on the association between BMI increase in early life and cognitive functioning in later life is scarce and inconsistent; this also regards the causal pathways. We assessed the associations of individual BMI trajectories from birth until age 19 with cognitive functioning in young adulthood. Second, we studied whether this association was affected by the developmental potential in early life.

Methods

A longitudinal cohort study design was applied using data (n=1,816) from the Dutch Tracking Adolescents' Individual Lives Survey (TRAILS)-cohort. Participants had about 16 BMI measurements between 0-19 years. By linear spline

multilevel models we estimated the BMI growth velocities for six age intervals: 0–3 months, 3 months–1 year, and 1–3, 3–7, 7–10, and 10–19 years. At age 19, cognitive functioning was measured by the Verbal Learning Test, Complex Figure Test, and the WAIS-III Digit Span and Block design subtests. Developmental potential in early life was approximated by a composite developmental (D-)score based on the Dutch Van Wiechen scores at age 15 months.

Results

Significant negative relationships were found of BMI increase in early childhood (1-3 years) with verbal memory (β -0.82, SE 0.30), digit memory (β -1.45, SE 0.33), and executive functioning (β -5.02, SE 1.72), and of BMI increase in late childhood (3-7 years) with digit memory (β -1.67, SE 0.60). A positive relationship was found of BMI increase in late infancy (3-12 months) with digit memory (β 0.18, SE 0.07). Adjustment for the D-score did not affect the associations.

Conclusion(s) with key message

Between 1-7 years of age, BMI increases showed negative relationships with cognitive outcomes at age 19; before age 1 a positive relationship was found with digit memory. The associations were independent of developmental potential, suggesting causality and not reverse causality. For an optimal cognitive development, BMI SDS increase after the age of 1 year should be prevented.

Statement

Preventive child health care professionals should put even more emphasis on the primary prevention of overweight, especially between 1 and 7 years of age. A first step could be to share these new insights with parents.

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Determinants during the first 1000 days of life affecting sleep in school-aged children.

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Background and aims

Adequate and high quality sleep is important for the healthy development of children. The first 1000 days of life is a period where the foundation for health is established. The aim of this study is to determine determinants during the first 1000 days of life that are associated with a higher sleep problem score; reduced sleep duration or short sleep duration (<10h) in 7-8 year old children.

Methods

Data were analyzed using the Amsterdam Born Children and their Development cohort study (ABCD, n=2000). Outcome measurements were: the sum score of the Child Sleep Habits Questionnaire (CSHQ); sleep duration; and short sleep (<10 hours per night). Potential determinants were categorized into pregnancy-; birth-; infancy-; and context determinants. Multivariable regression analyses were used to study the associations between determinants and outcomes.

Results

The mean sleep duration was 10.7 hours, the mean CSHQ score 40,8 and the prevalence of short sleep duration (<10 hours) was 6.1%. Pregnancy determinants associated with a higher sleep problem score were maternal pre-pregnancy BMI, drinking ≥ 1 glass of alcohol per day and having more symptoms of anxiety. Maternal use of sedatives or sleep medication during pregnancy was associated with shorter sleep duration and higher odds of child's short sleep. Infancy determinants positively associated with shorter sleep duration were sleeping in parent's bed and male sex. Within the context determinants category, being a single parent was associated with a higher sleep problem score. Children of African descent had a significant shorter sleep duration and higher odds on short sleep compared to Dutch children.

Conclusions

This is one of the first studies on identifying determinants during the first 1000 days of life of childhood sleep. We found several determinants during the first 1000 days of life affecting sleep at age 7-8 years. We encourage other researchers to retest associations with the same determinants in other cohorts and to develop and test interventions.

Statement

Influencing the surroundings of youth matters. Clinical and parental attention to environmental determinants, healthy pregnancy and the infancy period can lead to healthier sleep at age 7-8 years.

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Changing contexts: all (near) work and no play

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Background and aims

Near vision activities like the use of mobile telephones and tablets dominate our lifestyle in this present digital era, children will face increased visual impairment, with less time spent outdoors. The prevalence of myopia (near-sightedness or defective vision of distant objects) has increased worldwide, reaching nearly 50% of the European