Scars of Childhood Stress Exposures
A Systematic Review

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Introduction and Background

Childhood socioeconomic position (SEP) has potential to alter epigenetic pathways associated in the development of adulthood mental health outcomes. Epigenetics refers to mechanisms that cause changes to gene expression, without causing changes to the genetic code of DNA (Cruceanu, Matosin, & Binder, 2017). DNA methylation (DNAm) is a stable chemical medication which can alter how genes are expressed (Jones & Takai, 2001).

Aim: Systematically review the literature assessing the association between DNAm and childhood SEP, with insight in regards to influences on mental health outcomes.

Methods

Inclusion Criteria
- Human
- Original research
- Analysis on an association between DNAm and a measure of childhood SEP,
- Childhood SEP must have solely occurred before age 18.

Database Search
PubMed, Scopus

Abstract Screening
n=3941

Full Text Screening
n=81

Data Extraction & Quality Check
n=32

Key Search Terms
- DNAm
- Gene methylation,
- Epigenetics
- Childhood/early environment socioeconomic position and adversities

Results and Implications

There is evidence for limited associations between childhood SEP and DNAm. Epigenome wide: across the entire epigenome (450,000 sites per person), altered patterns which varied between studies.

Specific genes: selection may limit research to existing areas of knowledge and interest.

SLC6A4 Gene associated with serotonin, OCD, & depression. Mixed results of DNAm.

NR3C1 Gene associated with stress response. Mixed results of DNAm.

OXTR Gene associated with social bonding, fear, & anxiety. Increased DNAm associated with lower SEP.

Epigenetic age acceleration: a type of clock which revealed a slight increase of aging with lower childhood SEP.

Inconsistent and varying measures of childhood SEP reveals an areawide oversight. The consistent use of a valid measure of childhood SEP is the best way to ensure childhood SEP is consistently operationalised.

11 studies used only financial related variables
11 studies used only educational related variables
11 studies used one variable to represent childhood SEP
21 studies developed a childhood SEP measure from 2 or more variables.

Previous research has indicated that DNAm might link childhood SEP and general health. This could be the case with mental health. A relationship needs to be established between childhood SEP and DNAm, to identify epigenetic markers that could link this relationship.

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