

# Scars of Childhood Stress Exposures

## A Systematic Review

Natasha Wood<sup>1</sup>, Thomas Trebilco<sup>1</sup>, & Associate Professor Sarah Cohen-Woods<sup>1, 2, 3</sup>.

<sup>1</sup>Flinders University of South Australia, College of Education, Psychology, and Social Work

<sup>2</sup>Órama Institute, Flinders University, Adelaide, SA, Australia

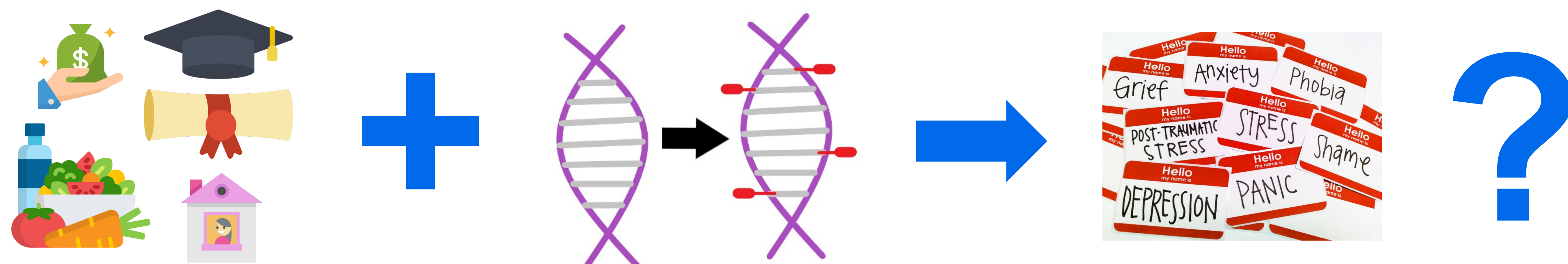
<sup>3</sup>Flinders Centre for Innovation in Cancer, Adelaide, SA, Australia



### Introduction and Background

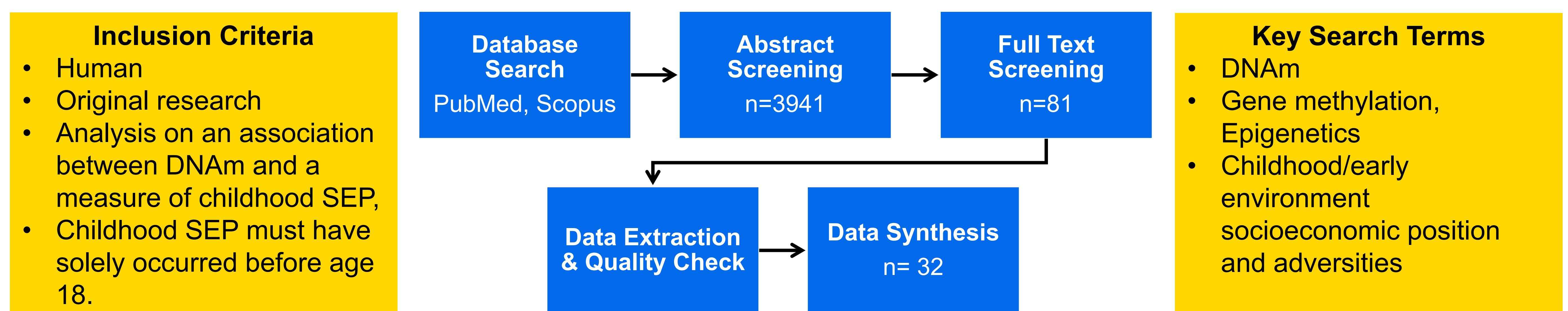
**Childhood socioeconomic position (SEP)** has potential to **alter epigenetic pathways** associated in the development of adulthood mental health outcomes.

**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 modification 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



### 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.

<b>SLC6A4</b> Gene associated with serotonin, OCD, & depression. <b>Mixed results of DNAm.</b>	<b>NR3C1</b> Gene associated with stress response. <b>Mixed results of DNAm.</b>	<b>OXTR</b> Gene associated with social bonding, fear, & anxiety. <b>Increased DNAm associated with lower SEP.</b>
---	---	---

**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.

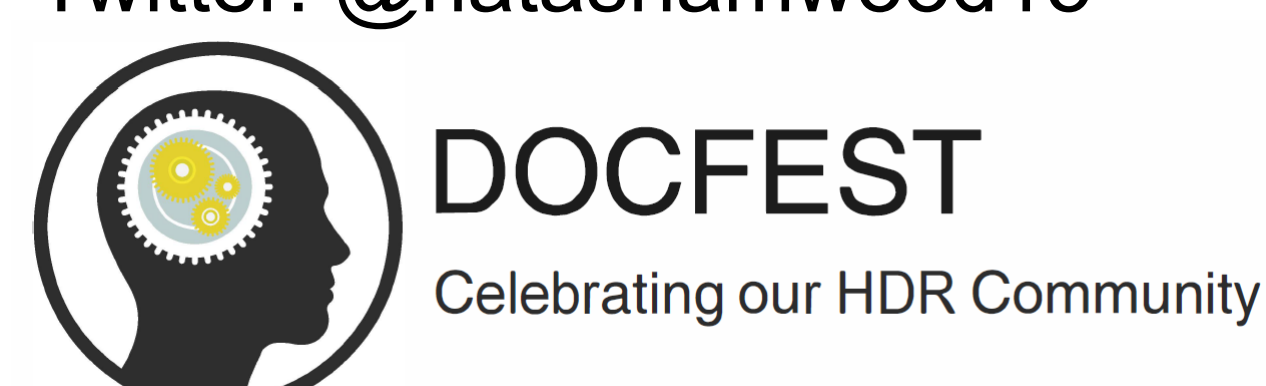
<b>11</b> studies used only <b>financial</b> related variables	<b>11</b> studies used only <b>educational</b> related variables	<b>11</b> studies used <b>one variable</b> to represent childhood SEP.	<b>21</b> studies developed a childhood SEP measure from <b>2 or more variables</b> .
--	--	--	---

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.

Email: [natasha.wood@flinders.edu.au](mailto:natasha.wood@flinders.edu.au)

Twitter: @natashamwood15

**References:** Cruceanu, C., Matosin, N., & Binder, E. B. (2017). Interactions of early-life stress with the genome and epigenome: from prenatal stress to psychiatric disorders. *Current Opinion in Behavioral Sciences*, 14, 167-171. doi:<https://doi.org/10.1016/j.cobeha.2017.04.001>  
Jones, P. A., & Takai, D. (2001). The Role of DNA Methylation in Mammalian Epigenetics. *Science*, 293(5532), 1068



**INSPIRING  
ACHIEVEMENT**