

ODISSEI Community Conference

22 October 2019 | Galgenwaard, Utrecht



ODISSEI

Open Data Infrastructure for Social Science and Economic Innovations

UTILIZING A NATURAL EXPERIMENT TO INVESTIGATE THE EFFECT OF EDUCATIONAL FAILURE ON MENTAL HEALTH

Perline Demange

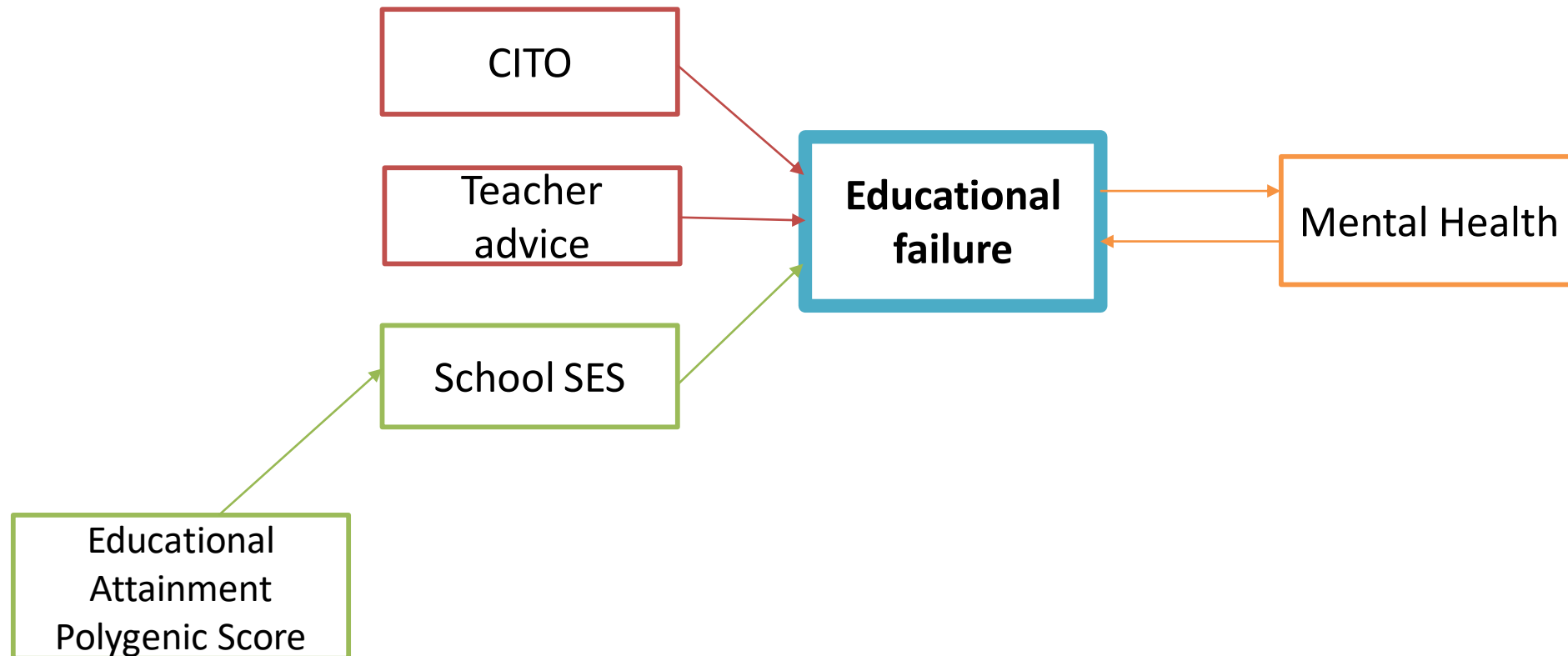
ODISSEI community conference



@PerlineDemange

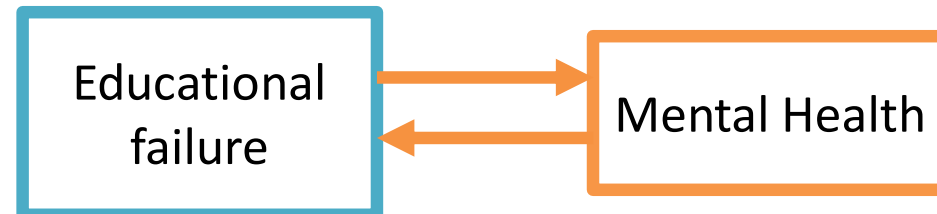


OUR SUBMITTED PROJECT



EDUCATIONAL FAILURE AND MENTAL HEALTH: CAUSE OR CONFOUNDING?

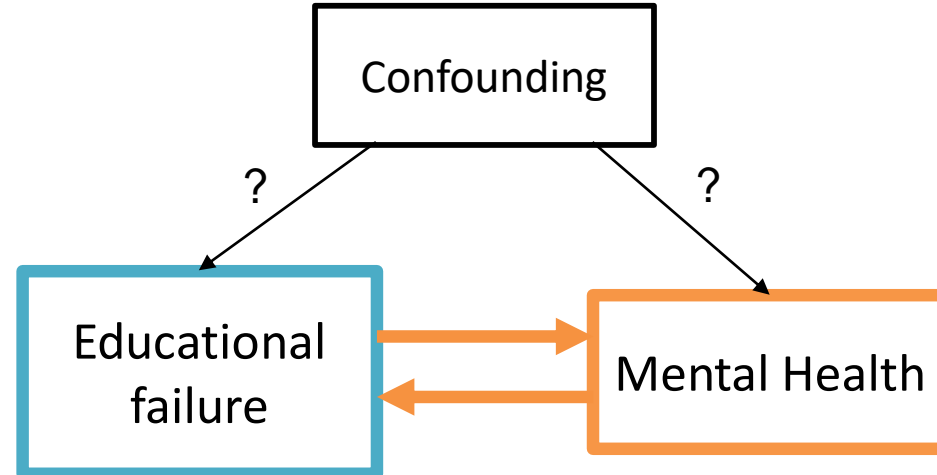
- Educational failure is associated with mental health issues like depression, anxiety, conduct disorder, etc.



Esch et al. 2014

EDUCATIONAL FAILURE AND MENTAL HEALTH: CAUSE OR CONFOUNDING?

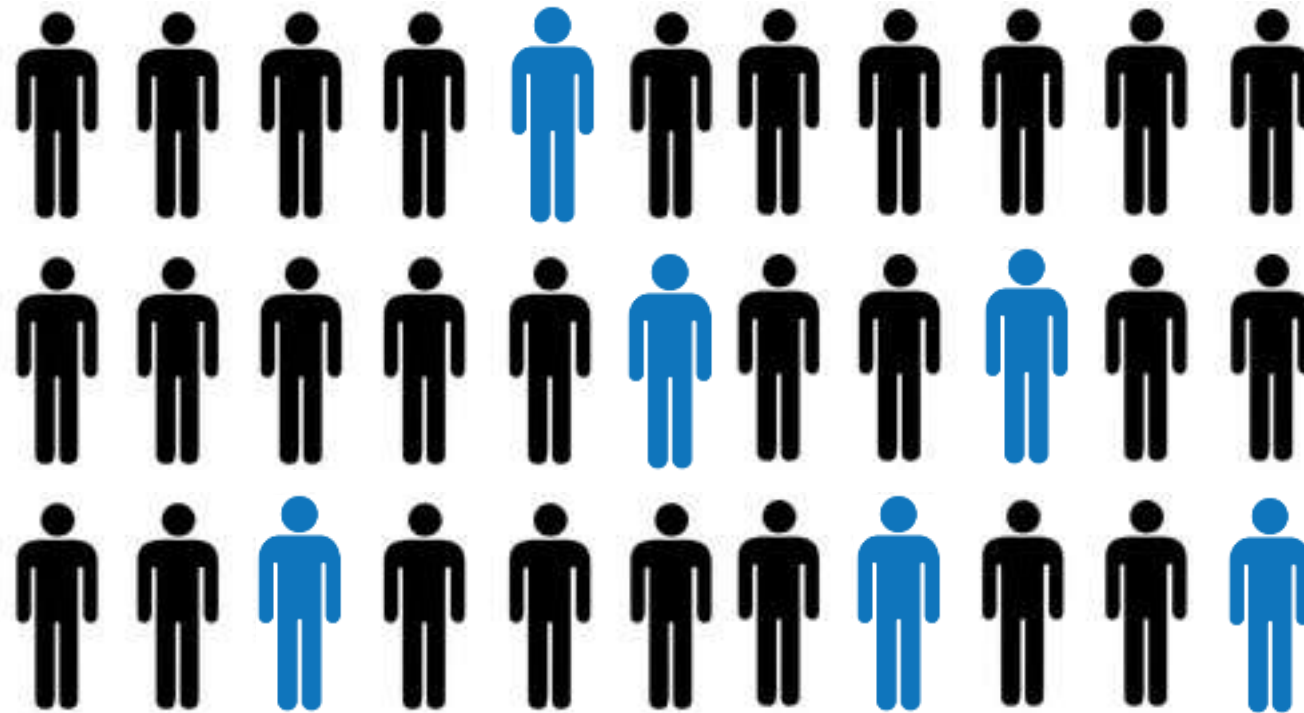
- Educational failure is associated with mental health issues like depression, anxiety, conduct disorder, etc.
- Is there a causal relationship?



Esch et al. 2014

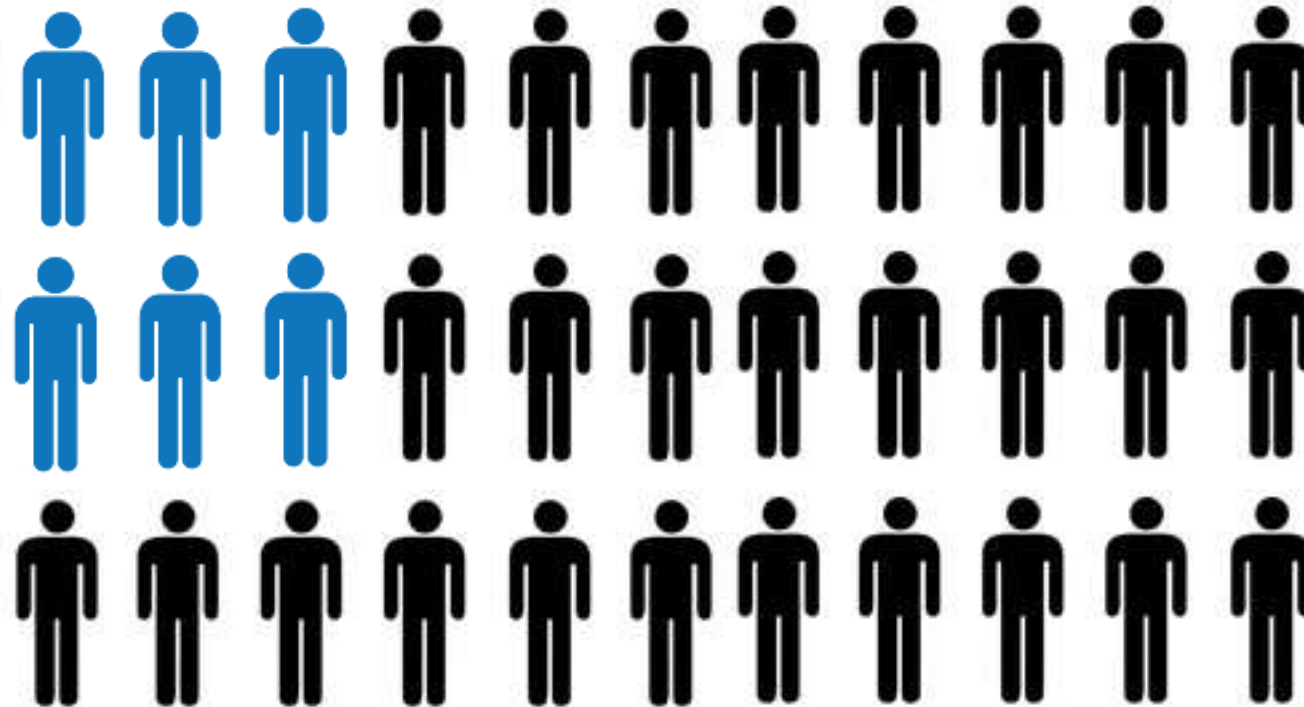
WHY USE A SIBLING DESIGN?

Observational



WHY USE A SIBLING DESIGN?

Experimentally assigned



WHY USE A SIBLING DESIGN?

Family A



Family B

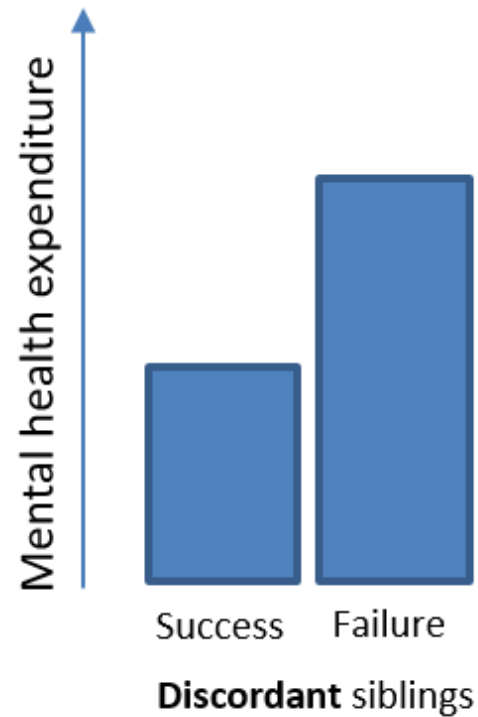


Family C

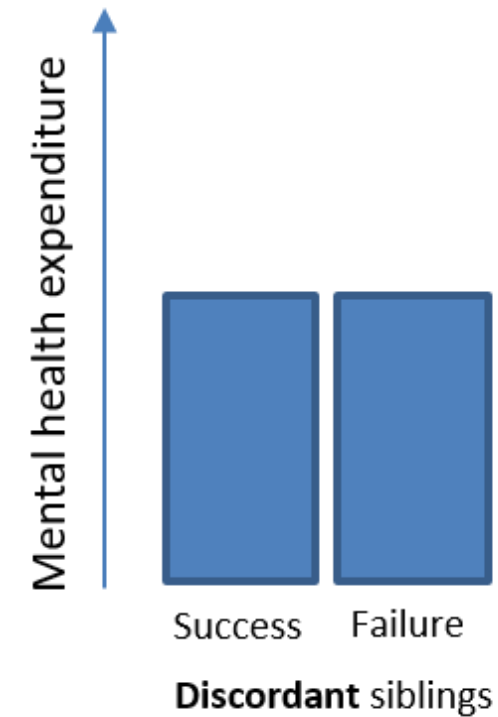


WHY USE A SIBLING DESIGN?

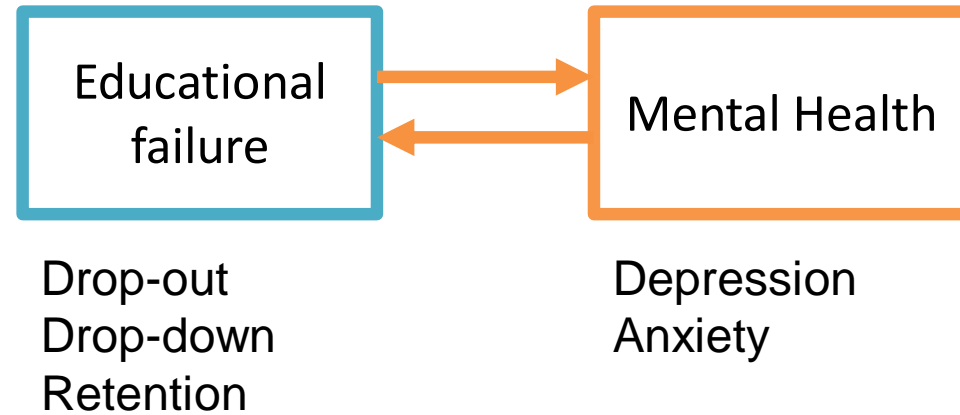
Potential causal effect



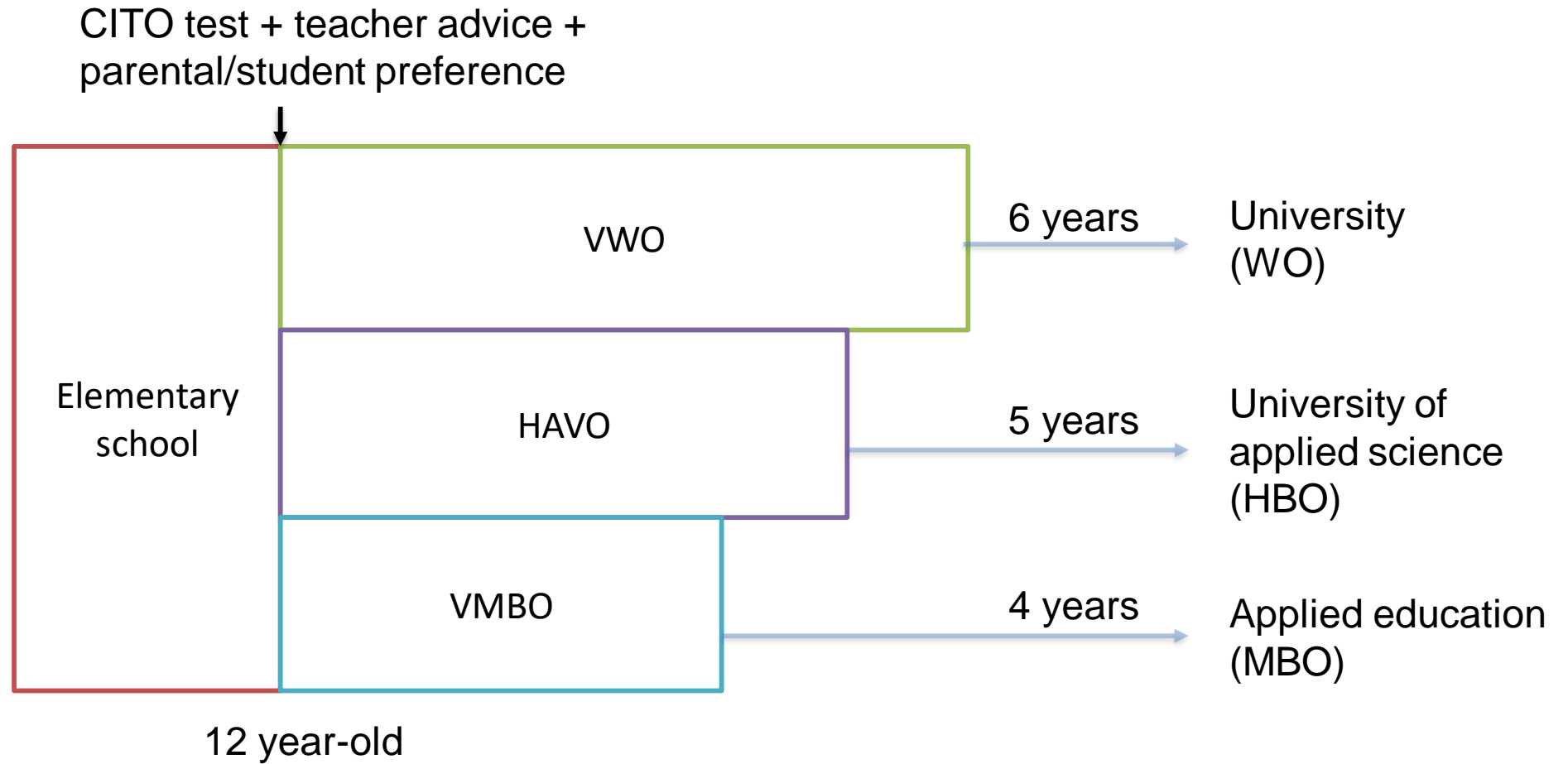
Presence of confounding



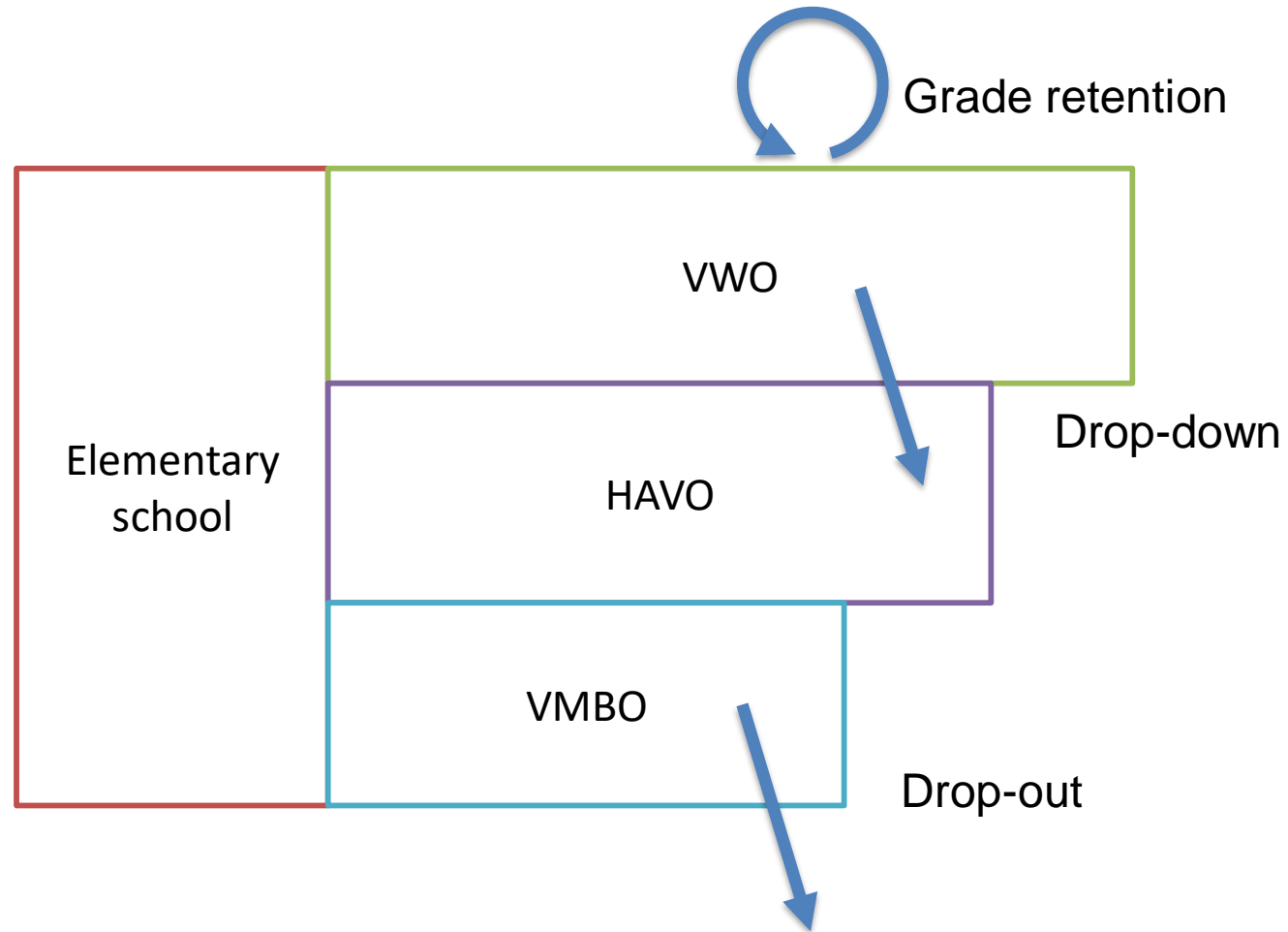
EDUCATIONAL FAILURE AND MENTAL HEALTH: CAUSE OR CONFOUNDING?



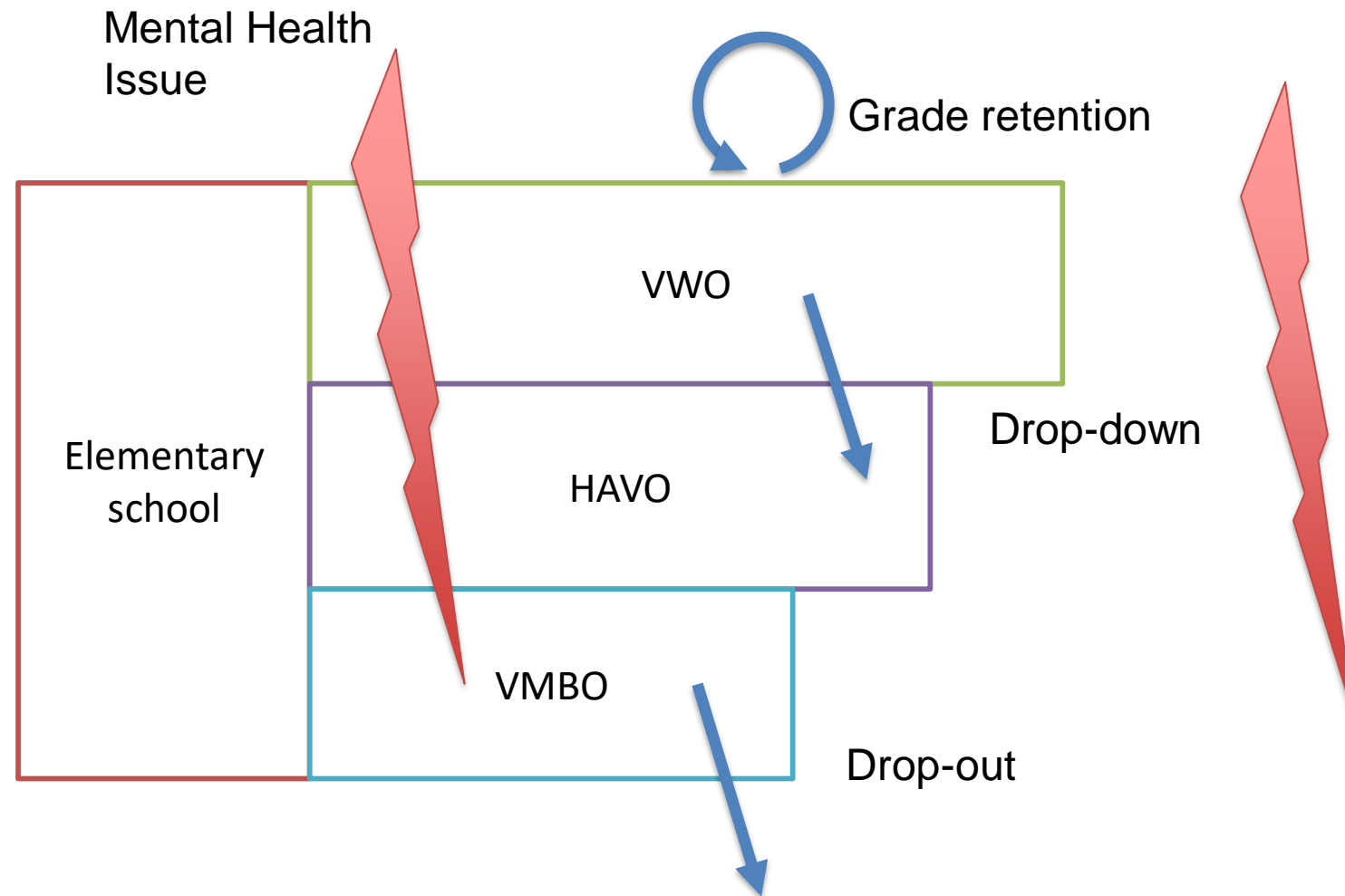
SECONDARY EDUCATION IN THE NETHERLANDS



EDUCATIONAL FAILURE



EDUCATIONAL FAILURE AND MENTAL HEALTH



MENTAL HEALTH IN CBS

- Healthcare costs specific to psychiatry/psychology (GGZ)
- Medications
- Diagnoses

- 1) Costs in GGZ
 - 2) Antidepressant
 - 3) Major depressive disorder (DSM-IV)
- 
- Depression

MENTAL HEALTH IN CBS

- Healthcare costs specific to psychiatry/psychology (GGZ)
- Medications
- Diagnoses

Data availability is limited so we can only look at a few years after educational failure

	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Costs													
Medication													
Diagnoses													
Education													



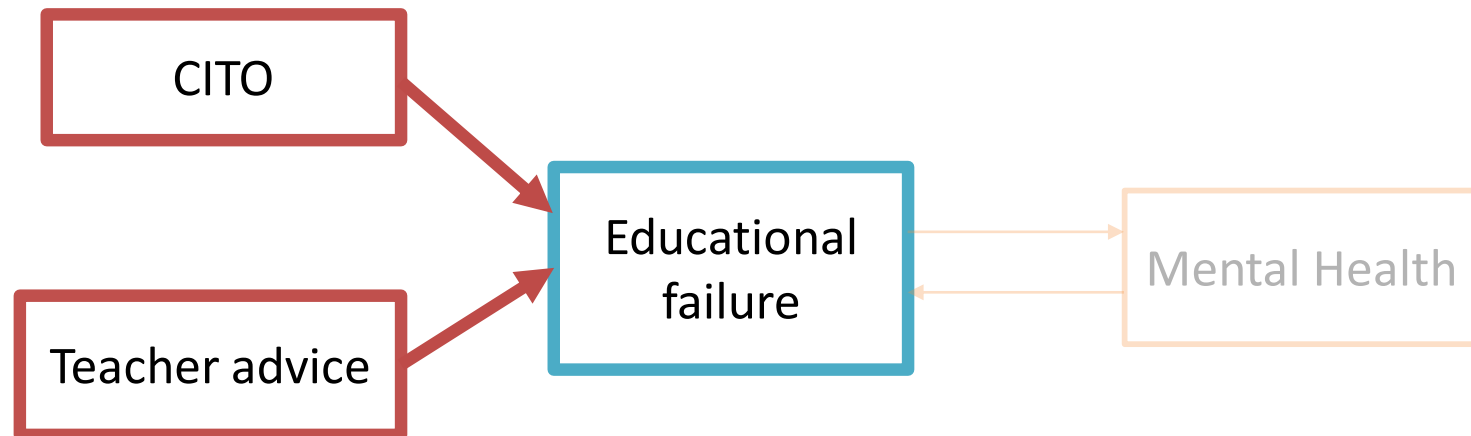
Adults + children



Only adults

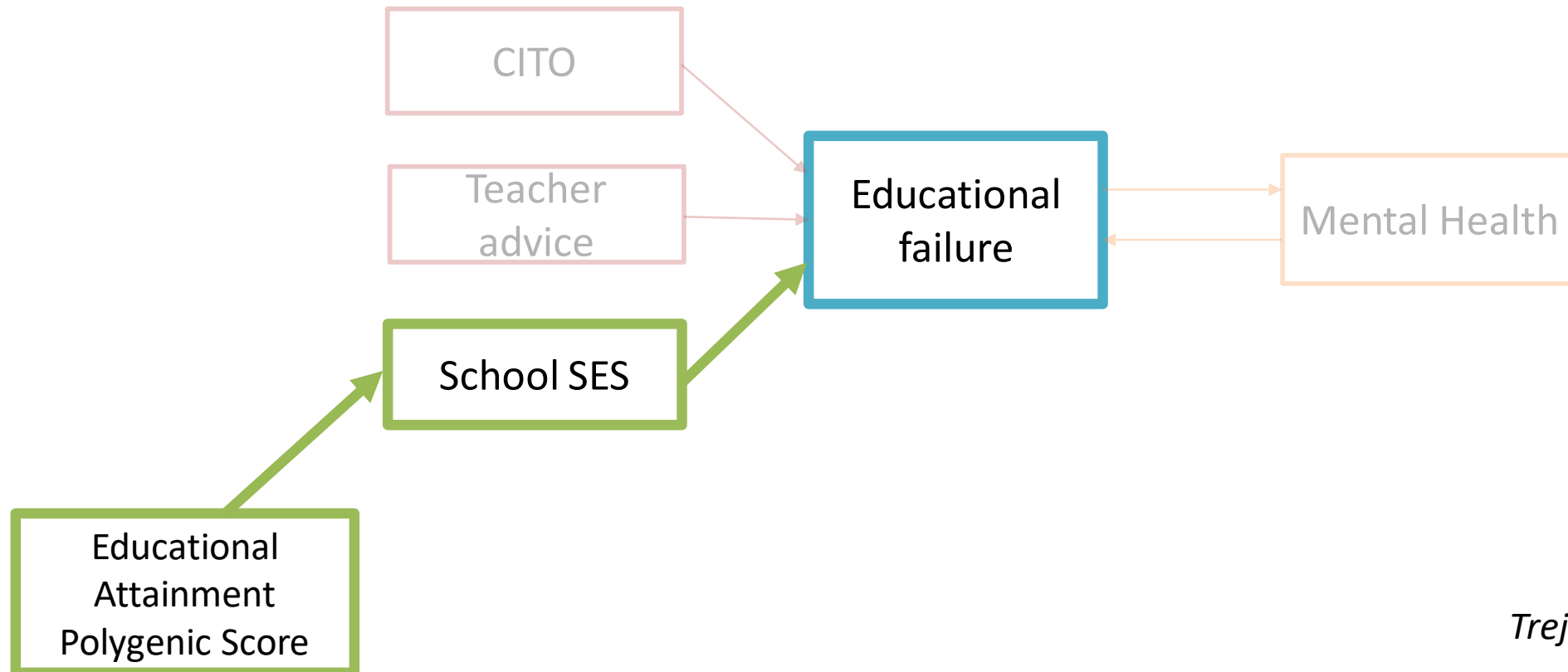
IMPROVING TRACKING CHOICE TO DECREASE RISK OF EDUCATIONAL FAILURE

- Could CITO score and/or teacher advice be predictive of secondary education failure?



EFFECT OF SCHOOL STATUS AND GENOMICALLY INFORMED PRECISION EDUCATION

- Could school status affect educational failure?



Trejo et al. 2018

EFFECT OF SCHOOL STATUS AND GENOMICALLY INFORMED PRECISION EDUCATION

- Difference between **public** and **private schools success rate** is only due to **different genetic predisposition** of the pupils in the UK.

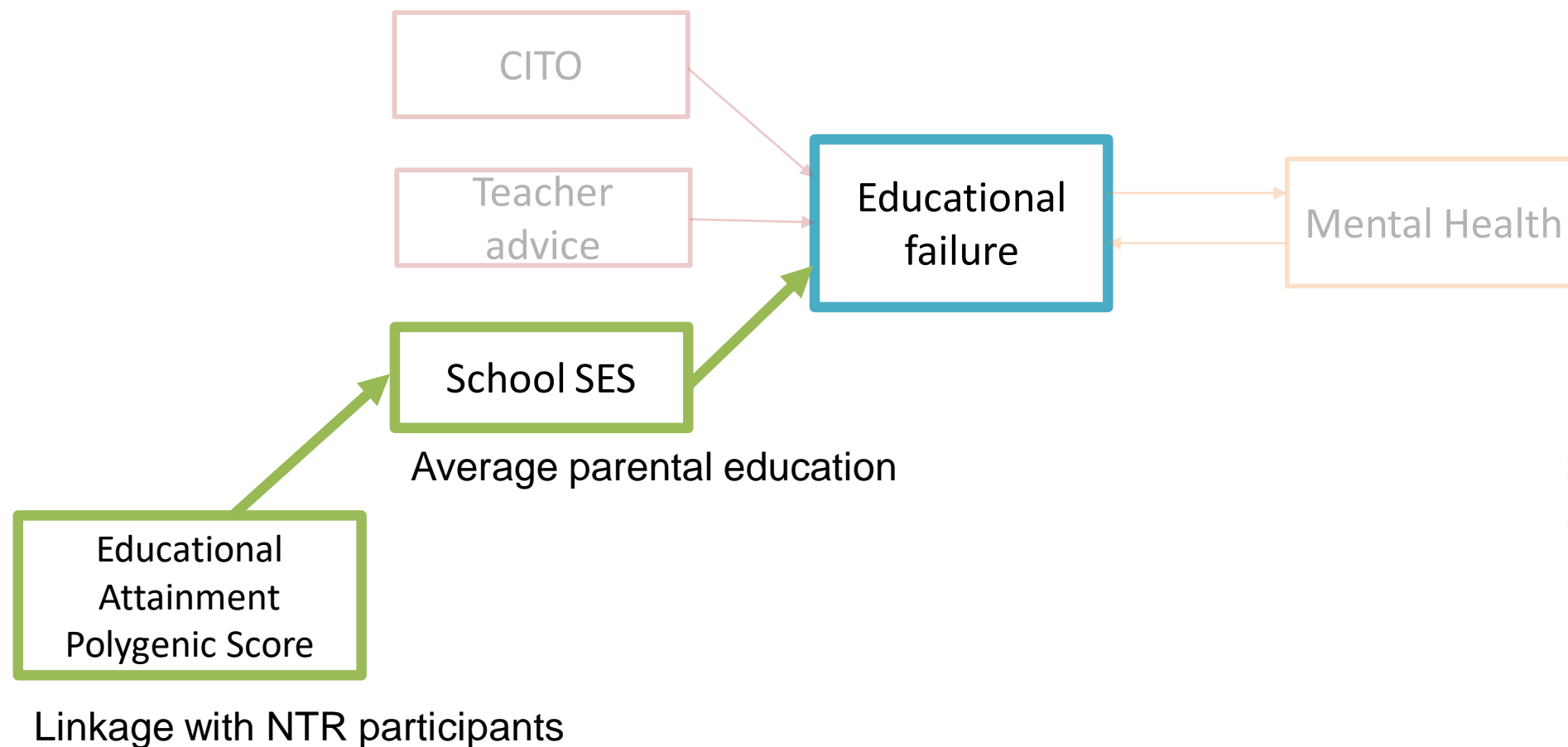
Smith-Woolley et al. 2018

- With the same genetic predisposition for education, pupils in less disadvantaged schools are **more likely to follow math courses** necessary for higher education in the US.

Harden et al. BiorXiv

Mediation of education failure by school SES in the Netherlands?

EFFECT OF SCHOOL STATUS AND GENOMICALLY INFORMED PRECISION EDUCATION



Nederlands
Tweelingen
Register

ADVANTAGE OF CBS DATA

- Access to a large population of siblings
- Access to more objective mental health measures
- Access to longitudinal education data
- Less biased towards higher education family than other registries
- Linkage with other Dutch registries

THANK YOU

Funding:
ODISSEI Microdata Access Grant



THANK YOU

Contact:

p.a.d.demange@vu.nl



@PerlineDemange

@NTRscience



**Eveline
de Zeeuw**



**Michel
Nivard**



**Elsje
van Bergen**



**Dorret
Boomsma**



Nederlands
Tweelingen
Register



WHY THE SIBLING DESIGN?

School A



School B



School C



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ODISSEI

Open Data Infrastructure for Social Science and Economic Innovations

Panel session: **The future of Social Sciences**

Pieter Hooimeijer (UU), Frank Takes (UvA, UL), Chantal Kemner (UU), Sofie de Broe (CBS)

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