

# 20 Years z-proso



## Time to think about time

Manuel Eisner

Institute of Criminology  
University of Cambridge

and

Jacobs Center of Productive Youth Development  
University of Zurich



University of  
Zurich<sup>UZH</sup>

# A lot of what we do is about three classes of questions

## The consequences of an event

- Victimization
- Divorce
- Police contact

## The prediction of an action

- Crime,
  - substance use
- 
- The link, over time, between different behaviour/symptom domains

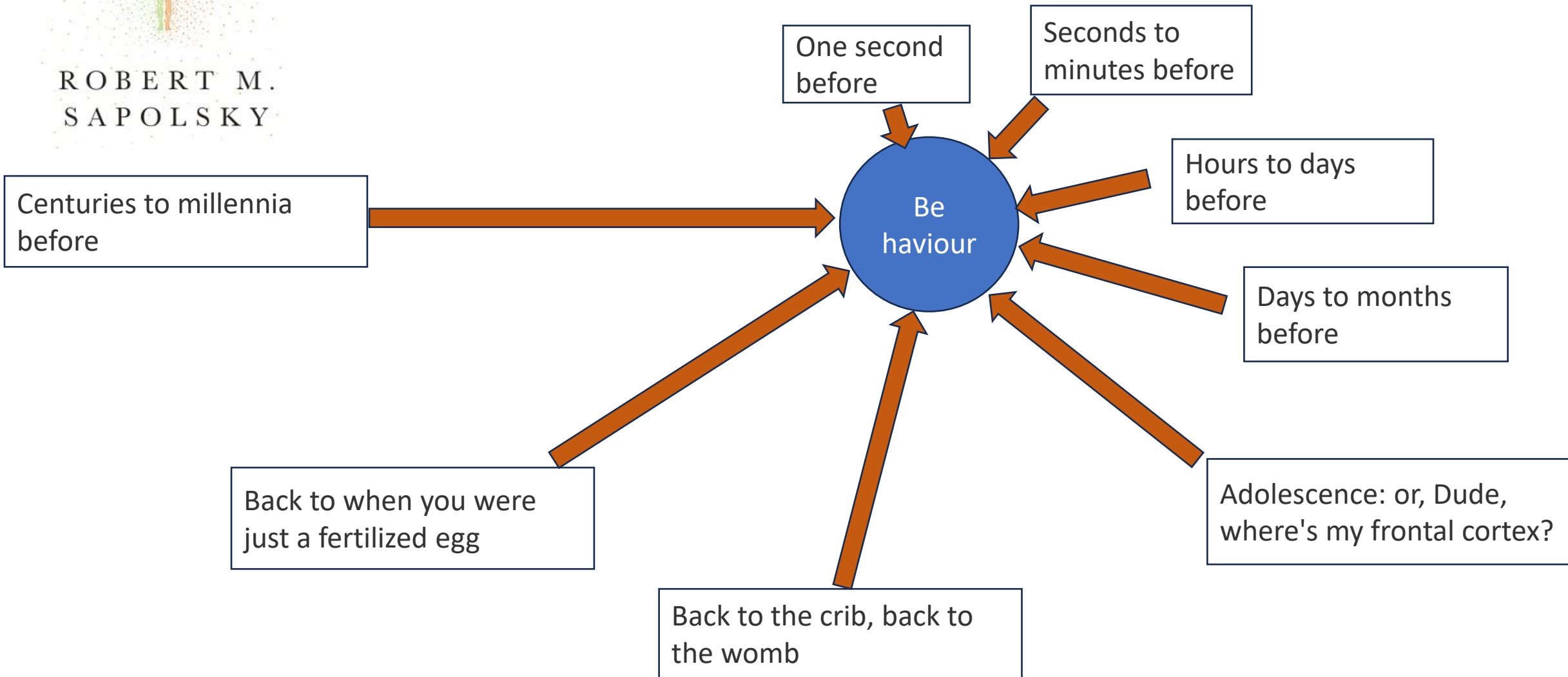
# BEHAVE

THE BIOLOGY  
of HUMANS at OUR  
BEST and WORST



ROBERT M.  
SAPOLSKY

## Behaviour is the result of mechanisms that operate at different time horizons



# Time for Time questions

- **Biological time** of the maturation of the human body
- **Institutional time** of schooling, exams, professional training, military service, age of majority, etc.
- **Historical time** of society-wide events, COVID, financial crisis, mobile phones, wars, terrorist acts.
- **Biographical time** of personal life events and experiences, first love, parental separation, moving home, first child.
- **Situational time** of decision-making, perceptions, interactions.

# Z-proso has info at different time scales

	Examples
Seconds to minutes	continuous heart-rate measures during interview Responses to video-scenarios and eye tracking fMRI data in the Hare et al. experiments
Hours to days	D2M experience sampling data
Weeks to months	Life events
2-4 years	Almost all data

Z-proso has info for different types of time

# Historical Time

Facebook starts



First Smartphone



Arab Spring



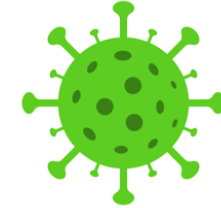
Refugee Crisis



Peak of Terrorist Attacks EU



COVID



Wave  
Age  
Grades  
N

1, 2, 3  
7, 8, 9 yrs  
Grades 1-3  
1,360 1,334 1,321

4  
11 yrs  
Grades 5  
1,147

5  
13 yrs  
Grades 6  
1,365

6  
15 yrs  
Grades 9  
1,446

7  
17 yrs  
Grades 11  
1,305

8  
20 yrs  
n/a  
1,180

9  
24 yrs  
n/a  
1,160

2004

2005 2006 2007

2009

2011

2013

2015

2018

2020

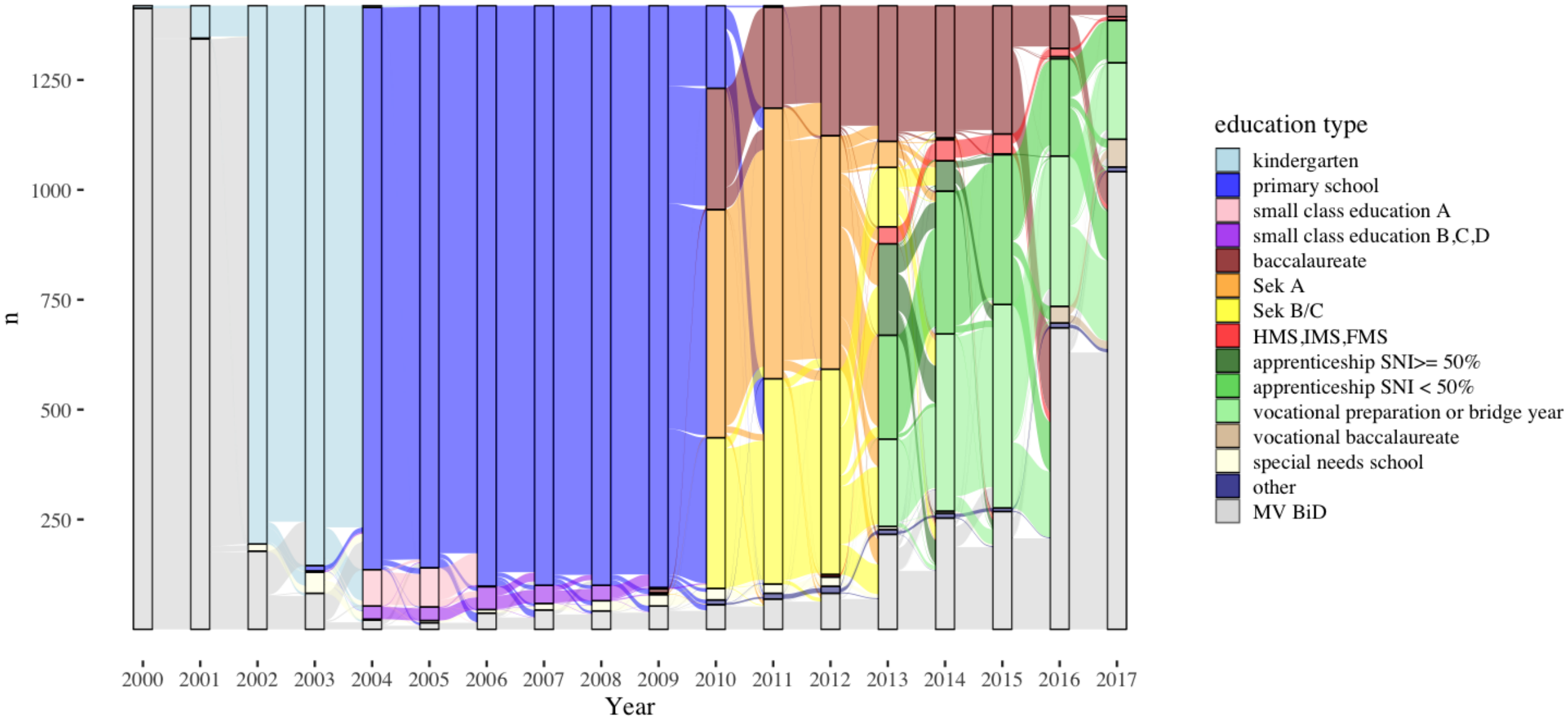
2022

Study onset

Early Adolescence

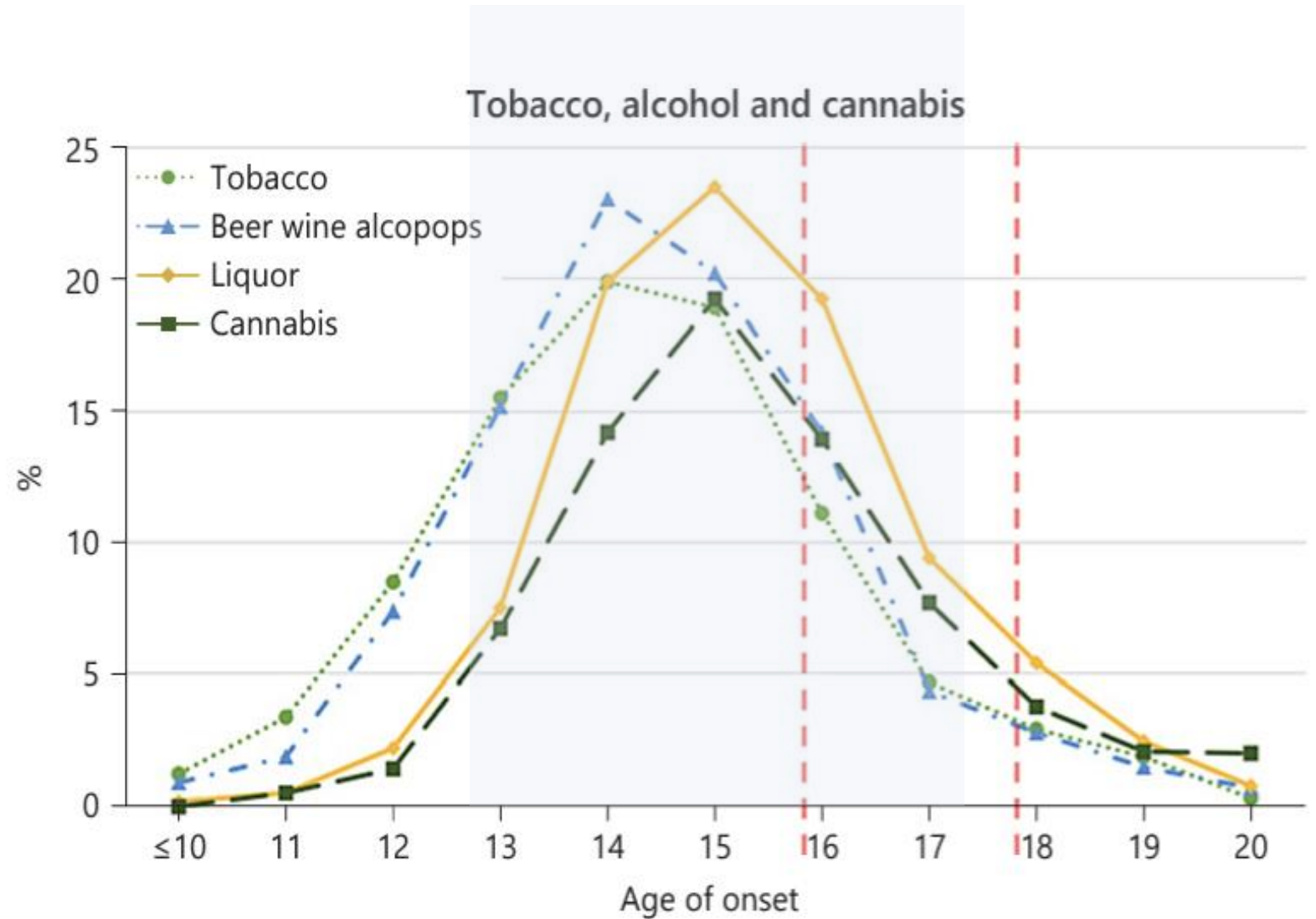
4 COVID-19 add-on surveys  
22 yrs

# Institutional Time





# Biographical Time

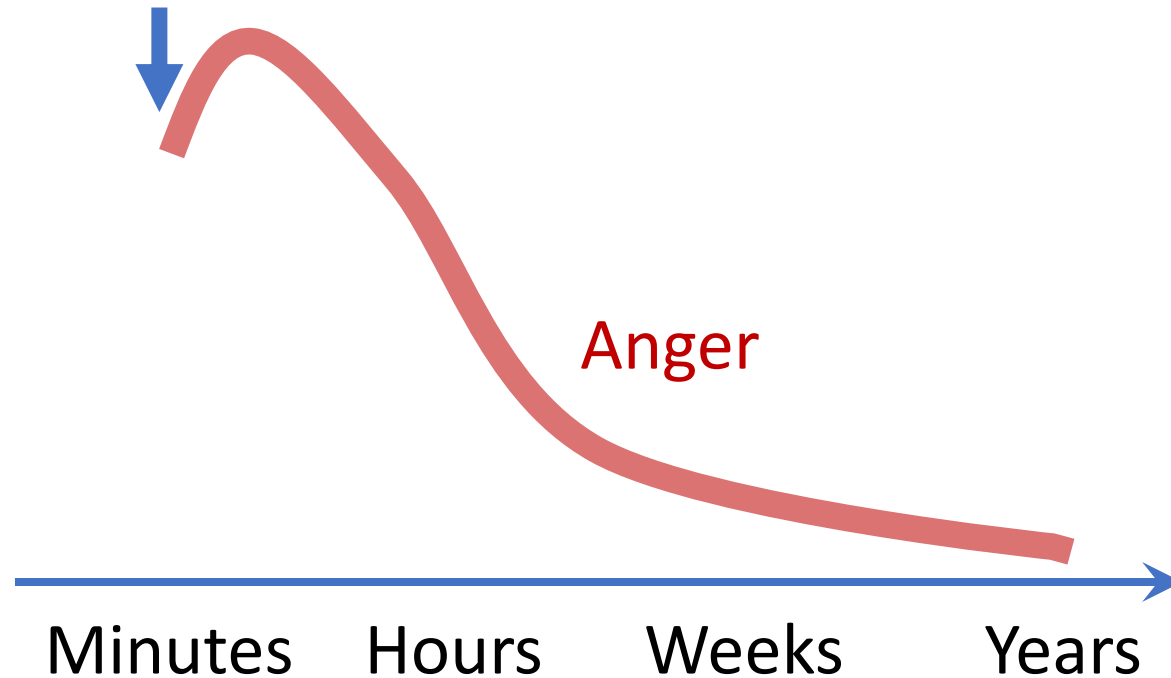


**Some questions**

That is the Timing of Consequences of Events?

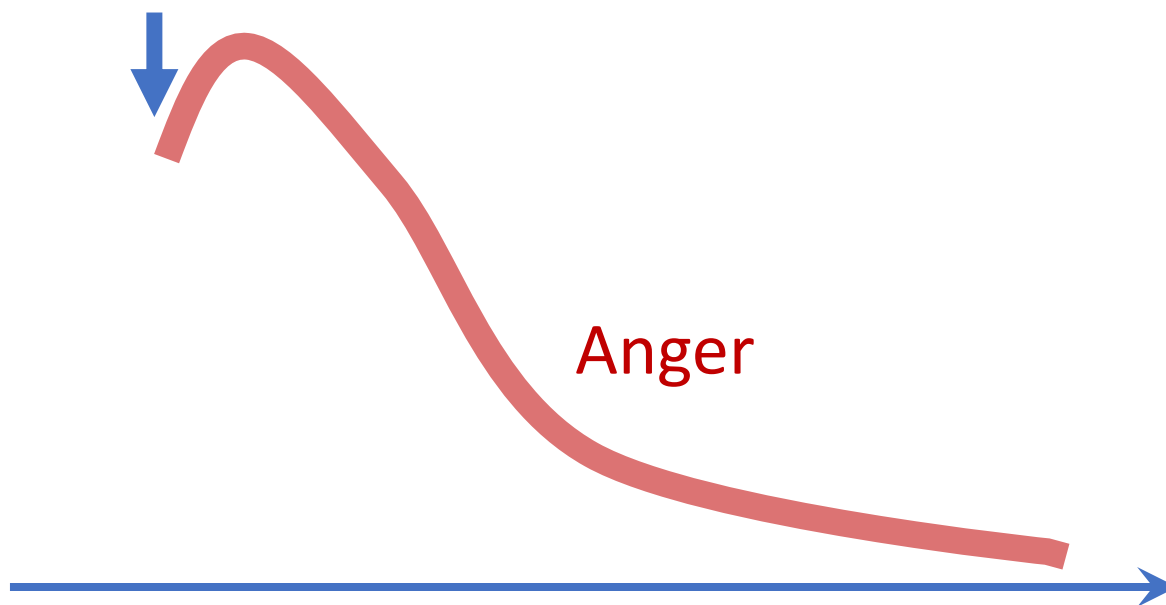
What is the transfer function between an event and the strength of the response?

You fucking idiot!!



# What is the transfer function between an event and the strength of the response?

You fucking idiot!!



Minutes

Hours

Weeks

Years

Binned as correlated error  
in cross-lagged models

Modelled as residual  
causal effect

# Transfer functions for life events, police contact, victimization, drug use,

- Different transfer functions for different outcomes
- Different transfer functions for different people
- Different social, neuro-cognitive, etc. causal mechanisms at different time delays.

Can the effects of exposure to some influence become larger with a longer time delay?

# Can the effects of exposure to some influence become larger with a longer time delay?

AGGRESSIVE BEHAVIOR  
Volume 40, pages 451–464 (2014)

## **Sex Differences in Aggression Among Children of Low and High Gender Inequality Backgrounds: A Comparison of Gender Role and Sexual Selection Theories**

Amy E. Nivette<sup>1\*</sup>, Manuel Eisner<sup>2</sup>, Tina Malti<sup>3</sup>, and Denis Ribeaud<sup>4</sup>

<sup>1</sup>*Nuffield College, University of Oxford, Oxford, UK*

<sup>2</sup>*Institute of Criminology, University of Cambridge, Cambridge, UK*

<sup>3</sup>*Department of Psychology, University of Toronto, Mississauga, Ontario, Canada*

<sup>4</sup>*Chair of Sociology, Swiss Federal Institute of Technology (ETH) Zurich, Zurich, Switzerland*



# Conclusion by Nivette et al.

Examined ages 7-13, teacher-assessed aggression, SBQ scale

“The results show that sex differences in aggression are generally larger among children with parents from high gender inequality backgrounds. However, this effect is small in comparison to the direct effect of a child's biological sex.”

Two measures of the structural background in which parents were socialized.

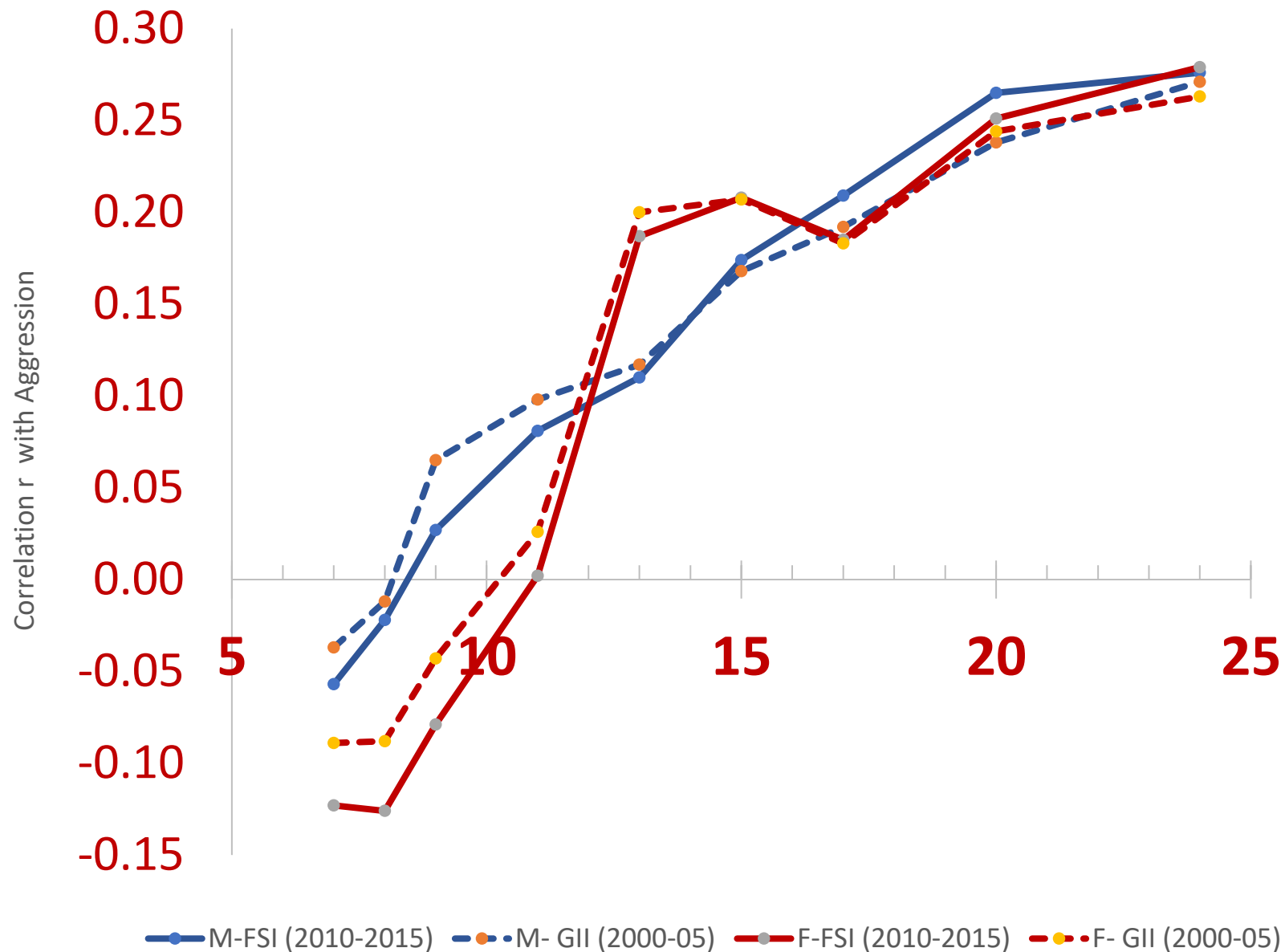
- **Gender Inequality: Gender Inequality Index (GII)** , average 2000-2005, United Nations Development Programme
- **State Fragility: Fragile State Index. (FSI)**, 2010-2015, Fund for Peace.

Note: Most study participants born in Switzerland

How does the association between the GII and FSI of the parents and the study participant's aggression change as they become older?

The association between Gender Inequality and State fragility in the parents' country of origin and the adolescents' own aggressive behaviour becomes stronger as they grow older.

NOTE:  $r$  associations  $>.10$  are  $p<.01$



# What is the mechanism?

- Parental Socialisation?
- Development of adolescent identity
- Discrimination experiences from secondary school onwards

How stable are configurations of roles over developmental time?

Zych, I., Ttofi, M. M., Llorent, V. J., Farrington, D. P., Ribeaud, D., & Eisner, M. P. (2020). A longitudinal study on stability and transitions among bullying roles. *Child development, 91*(2), 527-545.

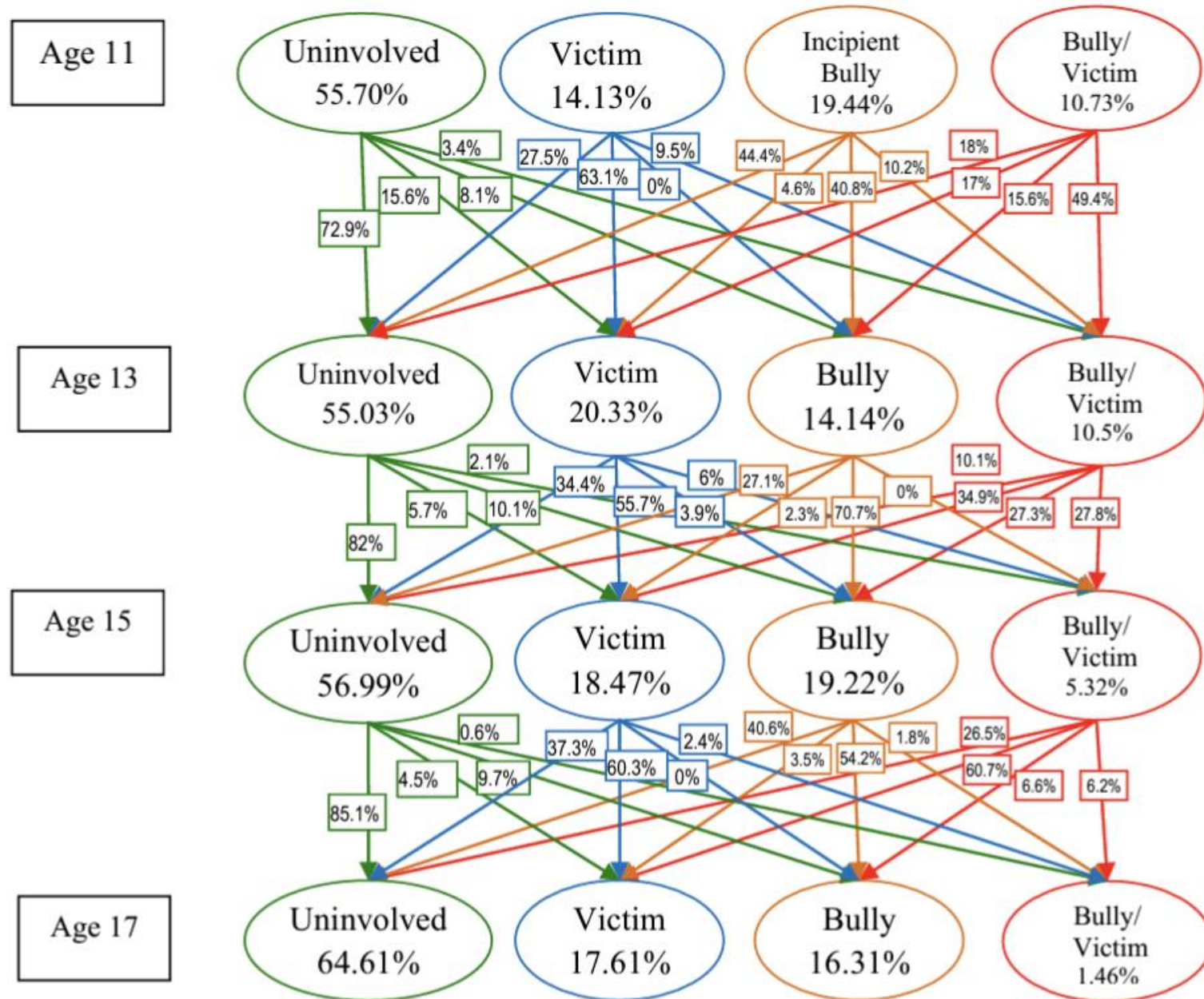


Figure 2. Transitions among different bullying roles from age 11 to 13, 13 to 15, and 15 to 17. [Color figure can be viewed at [wileyonlinelibrary.com](http://wileyonlinelibrary.com)]



# Why do most bad things come together in the same person and tend to persist over time?

## Dynamic Mutualism versus Common Cause

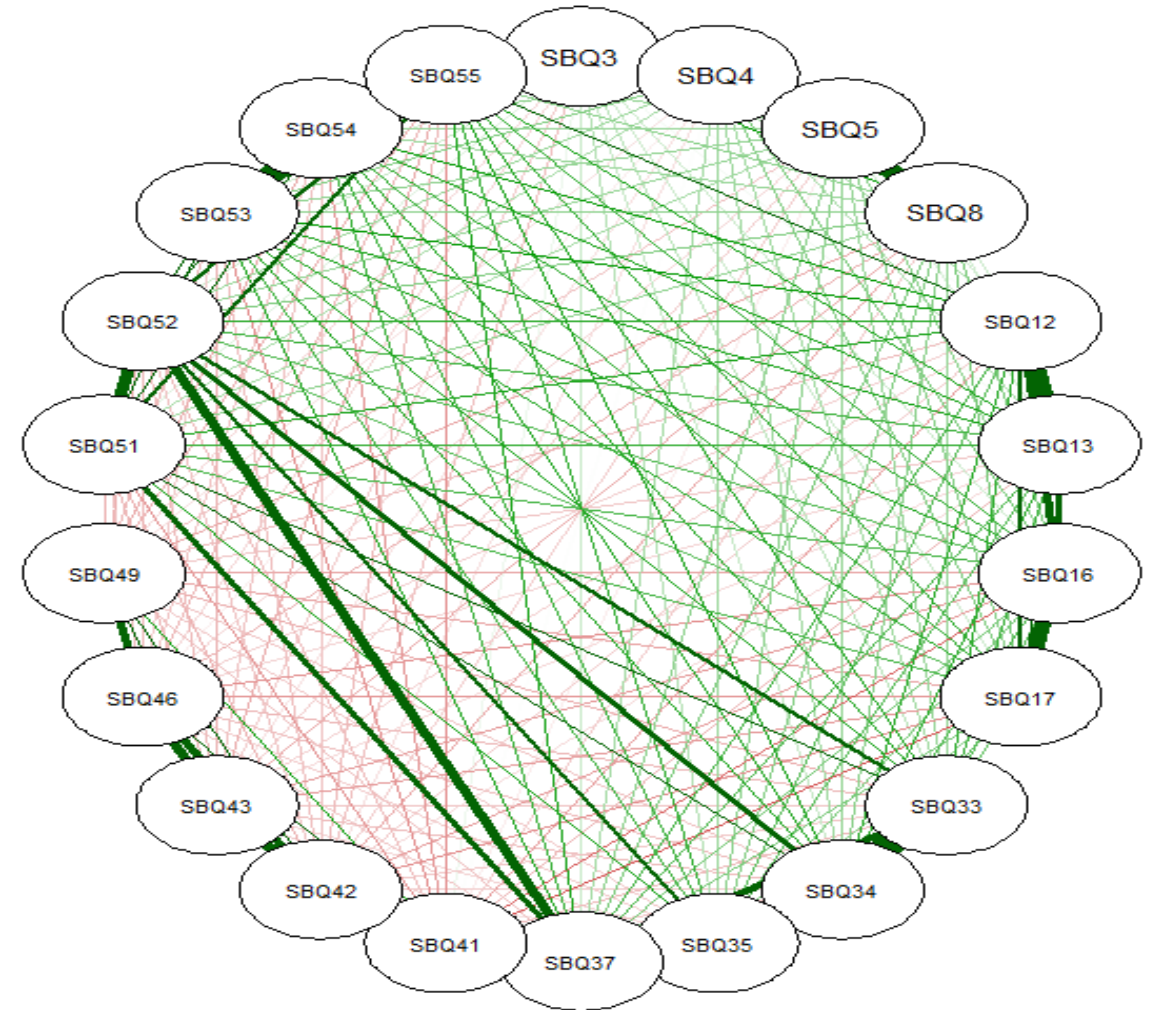
Murray, A. L., Eisner, M., & Ribeaud, D. (2016). The development of the general factor of psychopathology 'p factor' through childhood and adolescence. *Journal of abnormal child psychology*, *44*(8), 1573-1586.

Aristodemou, M. E., Kievit, R. A., Murray, A. L., Eisner, M., Ribeaud, D., & Fried, E. I. (2024). Common cause versus dynamic mutualism: An empirical comparison of two theories of psychopathology in two large longitudinal cohorts. *Clinical Psychological Science*, *12*(3), 380-402.



**Dynamic mutualism** assumes that psychopathological domains are effectively distinct. Symptoms in one domain have one-directional and bi-directional effects on other domains.

**Common Cause** predicts that psychopathological domains are manifestations of a general liability towards psychopathology. Behaviour symptoms become increasingly specific over time.



E.g. Cramer, A. O., Waldorp, L. J., van der Maas, H. L., & Borsboom, D. (2010). Comorbidity: A network perspective. *Behavioral and Brain Sciences*, 33, 137-150.

How do long-term characteristics influence the linkage between short-term processes?

# How do long-term characteristics influence the linkage between short-term processes?

Journal of Autism and Developmental Disorders (2023) 53:1213–1223  
<https://doi.org/10.1007/s10803-022-05624-w>

ORIGINAL PAPER



## The role of moment-to-moment dynamics of perceived stress and negative affect in co-occurring ADHD and internalising symptoms

Lydia Gabriela Speyer<sup>1,2</sup>  · Ruth Harriet Brown<sup>2</sup> · Denis Ribeaud<sup>3</sup> · Manuel Eisner<sup>3,4</sup> · Aja Louise Murray<sup>2</sup>

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# How do long-term characteristics influence short-term processes?

- Why are individuals with ADHD 6 times more likely to experience internalising problems such as anxiety or depression than individuals without ADHD?
- One mechanism that may play a crucial role in the relations between ADHD symptoms and internalising problems is **stress reactivity**.

## Findings

- Higher ADHD traits were associated with a **higher moment to moment coupling between stress and negative affect**.
- higher ADHD traits were associated with **stronger stress carry-over** and higher mean levels of negative affect.

# How do young people perceive time?

- Kübel, S. L., Deitzer, J. R., Frankenhuis, W. E., Ribeaud, D., Eisner, M. P., & Van Gelder, J. L. (2024). Beyond the situation: hanging out with peers now is associated with short-term mindsets later. *Journal of developmental and life-course criminology*, 1-22.
- Kübel, S. L., Deitzer, J. R., Frankenhuis, W. E., Ribeaud, D., Eisner, M. P., & Van Gelder, J. L. (2023). The shortsighted victim: Short-term mindsets mediate the link between victimization and later offending. *Journal of Criminal Justice*, 86, 102062.
- Defoe, I. N., van Gelder, J. L., Ribeaud, D., & Eisner, M. (2024). Short-term mindsets show co-development with adolescent delinquency, but not with adolescent cannabis use. *Journal of research on adolescence*.
- Van Gelder, J. L., Averdijk, M., Ribeaud, D., & Eisner, M. (2018). Punitive parenting and delinquency: The mediating role of short-term mindsets. *The British Journal of Criminology*, 58(3), 644-666.

Are treatments 'at random' conditional on the various controls taken from previous waves?

Child Psychiatry Hum Dev (2012) 43:184–200  
DOI 10.1007/s10578-011-0259-9

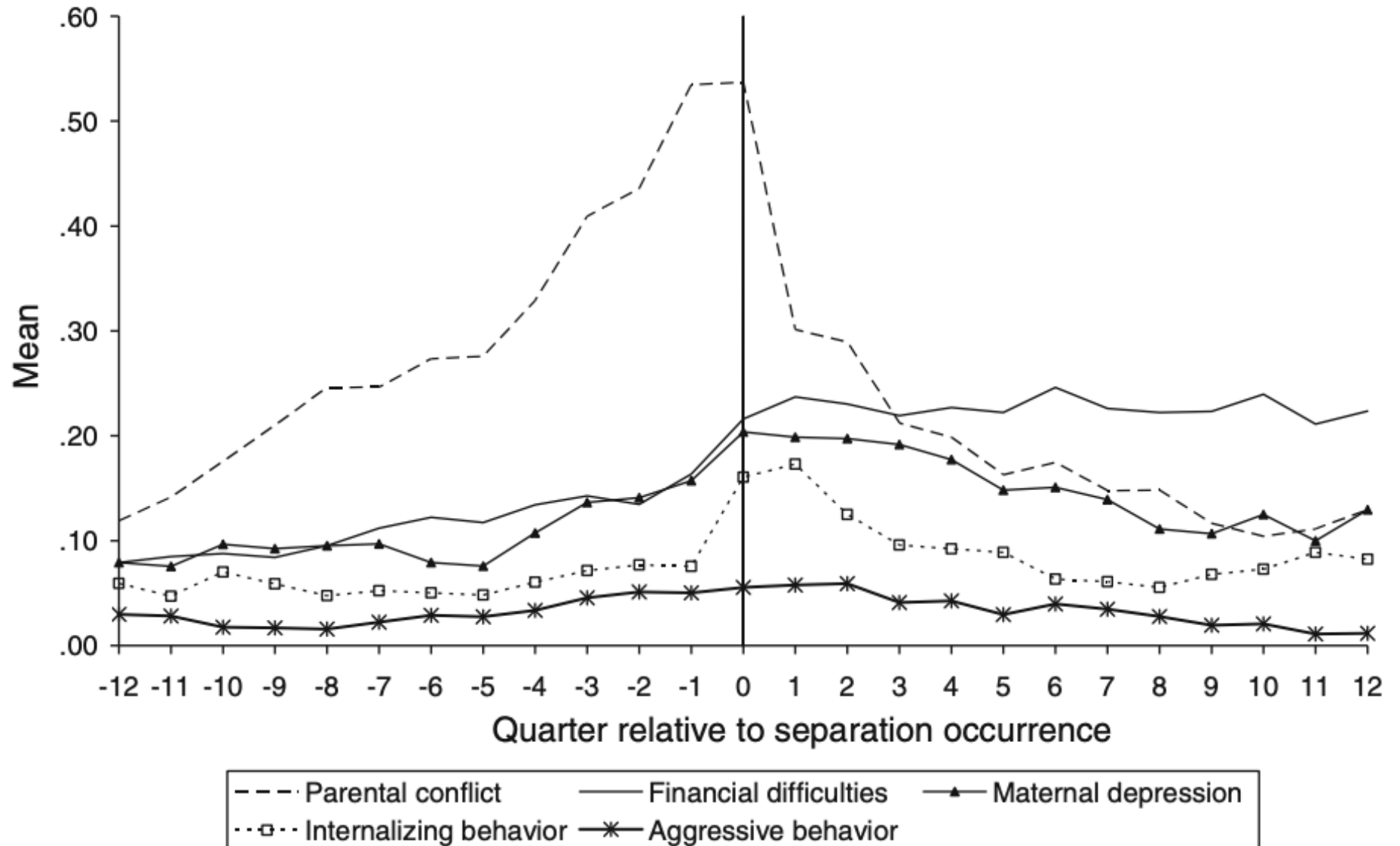
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ORIGINAL ARTICLE

## **Parental Separation and Child Aggressive and Internalizing Behavior: An Event History Calendar Analysis**

**Margit Averdijk · Tina Malti · Manuel Eisner ·  
Denis Ribeaud**

**Problems  
build up  
during the  
two years  
before the  
separation!**



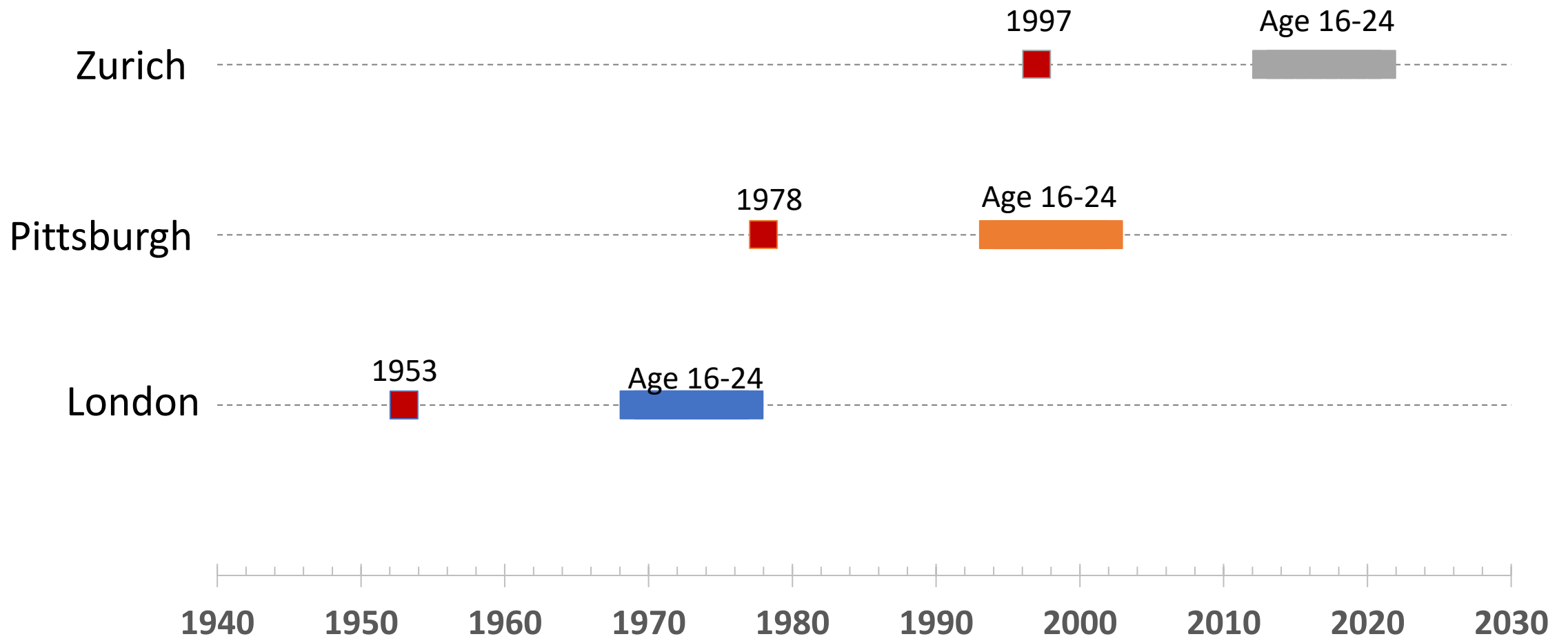
**Fig. 2** Time sequences for the effects of separation on maternal depression, financial difficulties, parental conflict, and children's aggressive and internalizing behavior. *Note.* Separation occurs when the "quarter relative to separation occurrence" ( $x$ -axis) is zero



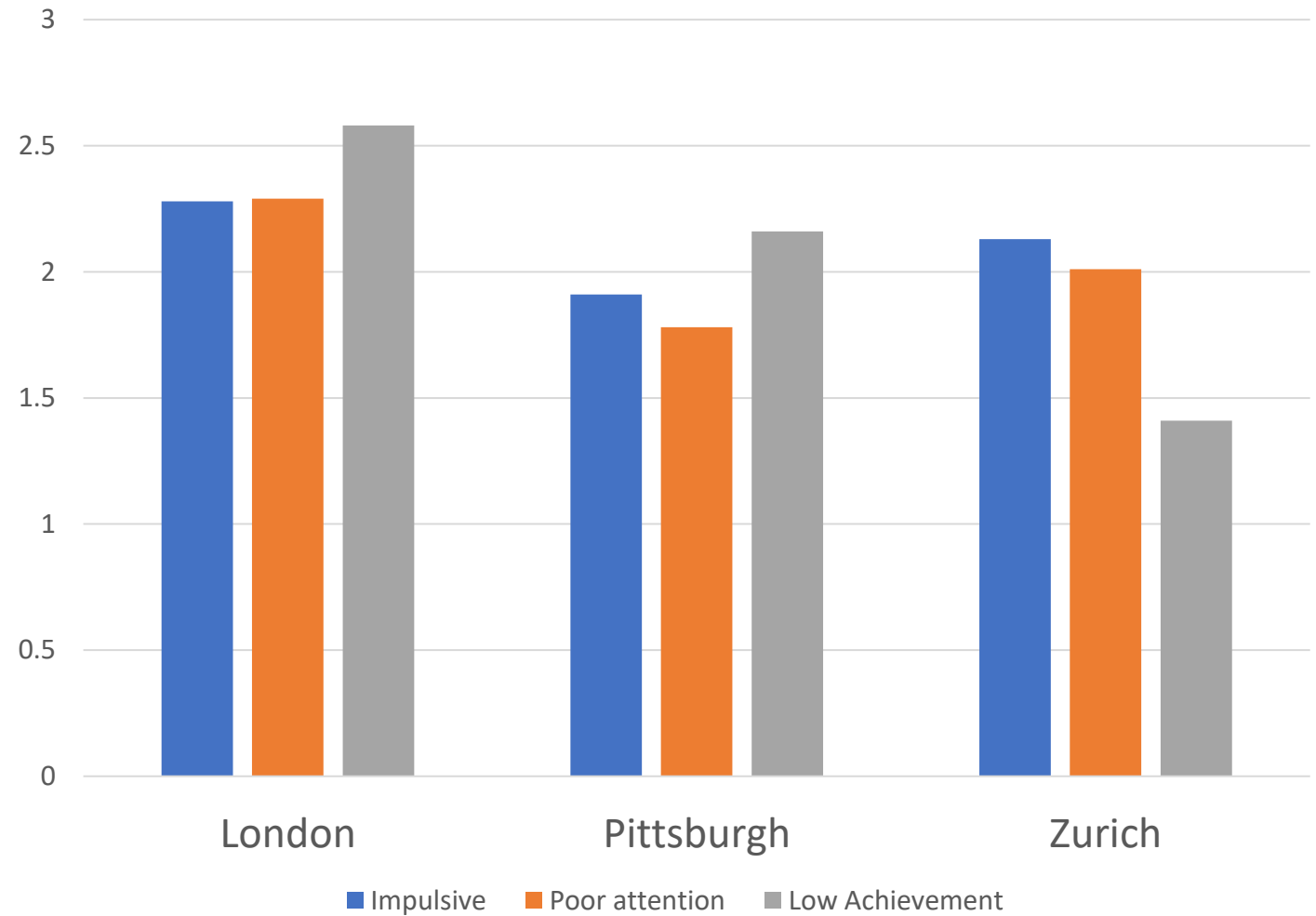
# CONCLUSIONS

# How similar are developmental processes in different places and different historical times?

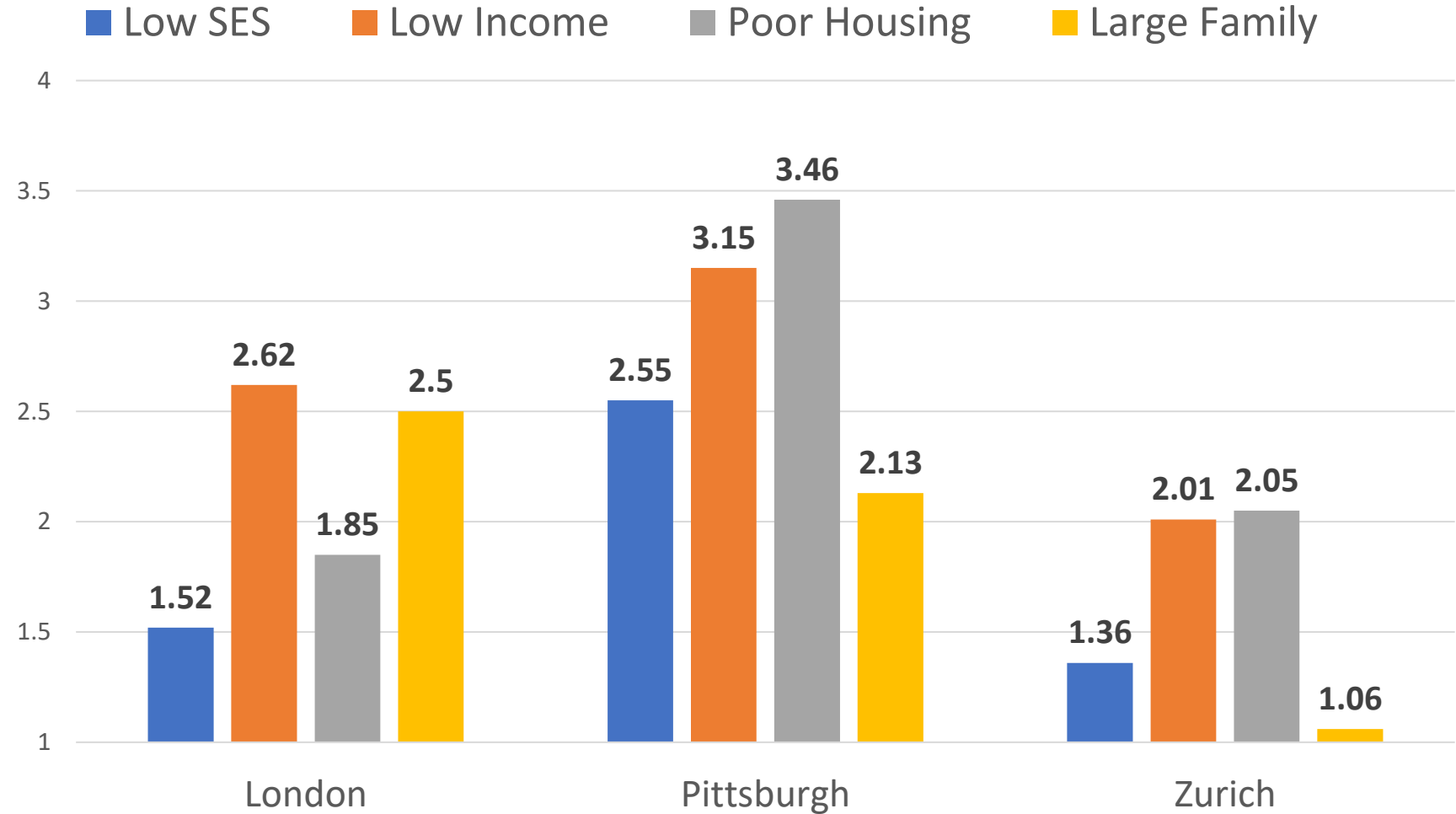
Zych, I., Farrington, D. P., Ribeaud, D., & Eisner, M. P. (2021). Childhood explanatory factors for adolescent offending: A cross-national comparison based on official records in London, Pittsburgh, and Zurich. *Journal of Developmental and Life-Course Criminology*, 7(3), 308-330.



# Individual Childhood Risk Factors are similar



# Disadvantage-Related Risks vary by context



# Conclusions

- Need for a deeper understanding of history effects that shape a current social context
- Consider change in significance of developmental risk factors across contexts and historical time (Pittsburgh, London, Zurich).