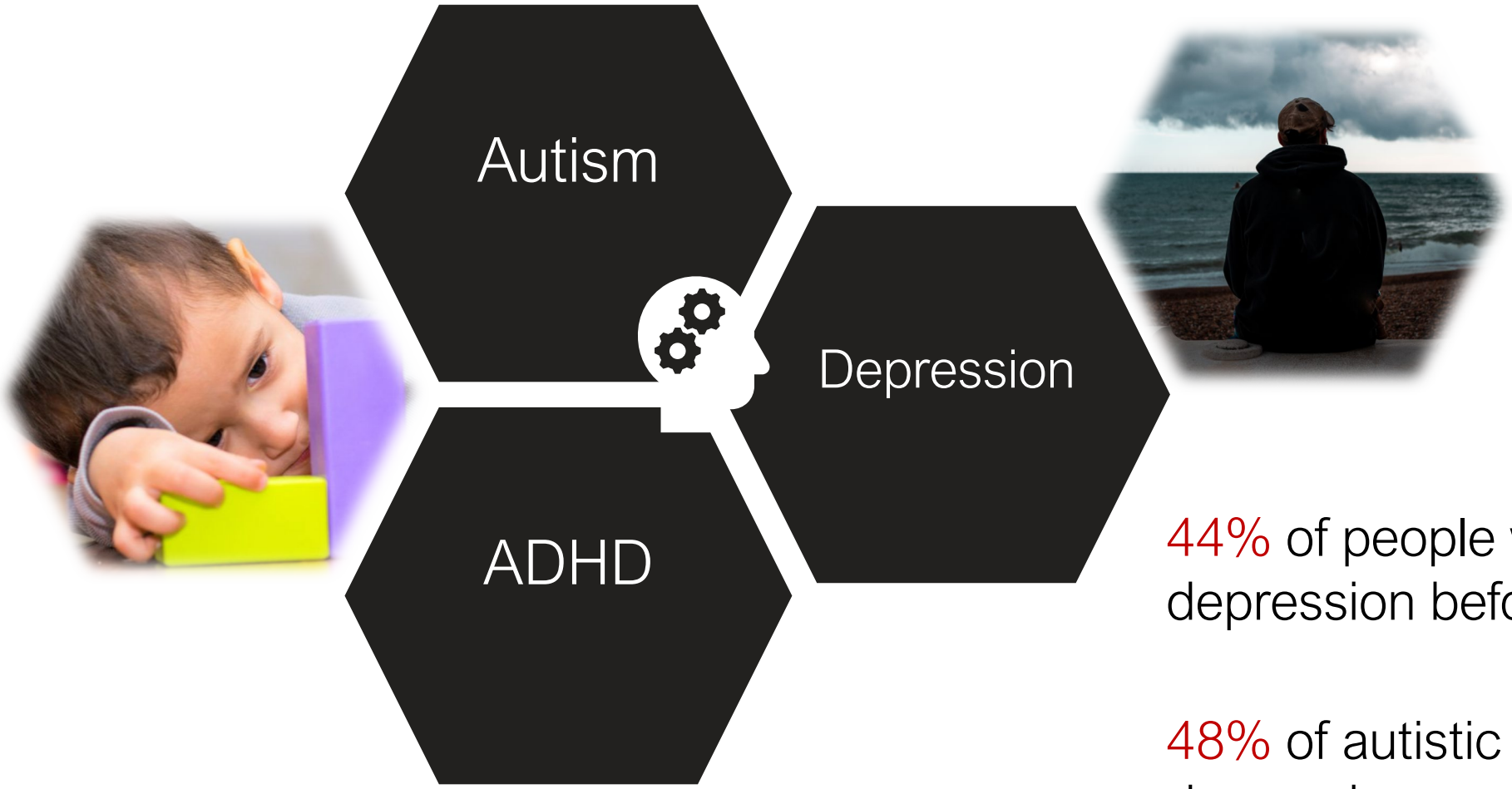
Depression in Autism & ADHD: What do we Know?

Dr Lucy Anne Livingston
Lecturer in Psychology

Institute of Psychiatry, Psychology & Neuroscience
King's College London

NEURODEVELOPMENTAL NEURODIVERSITY NETWORK

Autism, ADHD & Depression

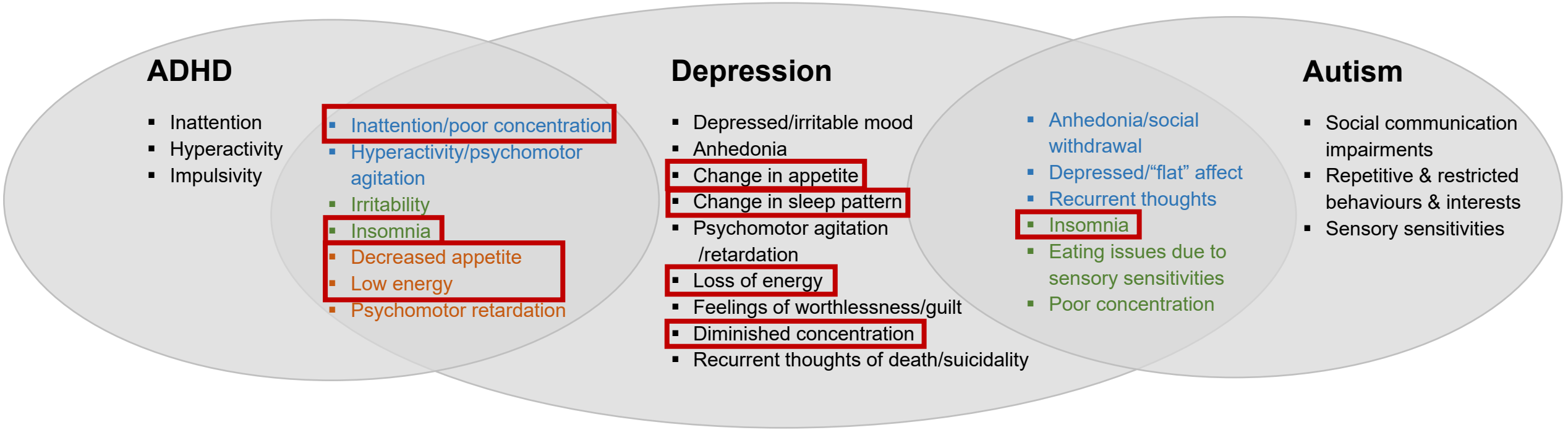


44% of people with ADHD experience depression before age 30

48% of autistic people report lifetime depression symptoms

Hudson *et al.* (2019); Meinzer *et al.* (2014)

1) Symptom Overlap



Core diagnostic criteria for ADHD, Autism & Depression

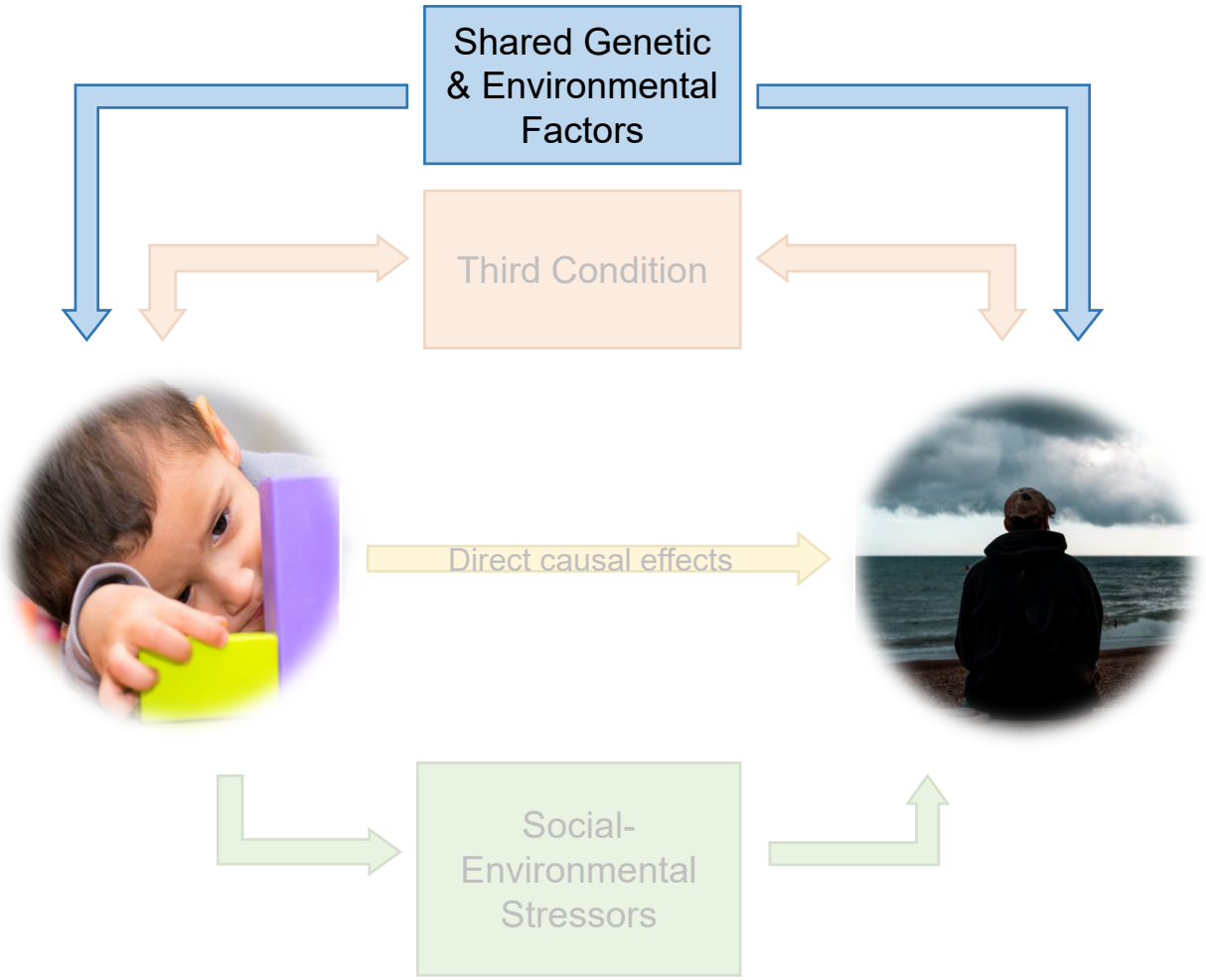
Overlapping diagnostic criteria between ADHD/Autism & Depression

ADHD/Autism associated symptom(s) overlapping with Depression symptom(s)

ADHD medication side effect(s) mimicking Depression symptom(s)

Thapar, Livingston, Eyre, & Riglin (2023) *JCPP*

2) Shared Genetic & Environmental Factors



Family, twin & molecular studies suggest shared genetic aetiology

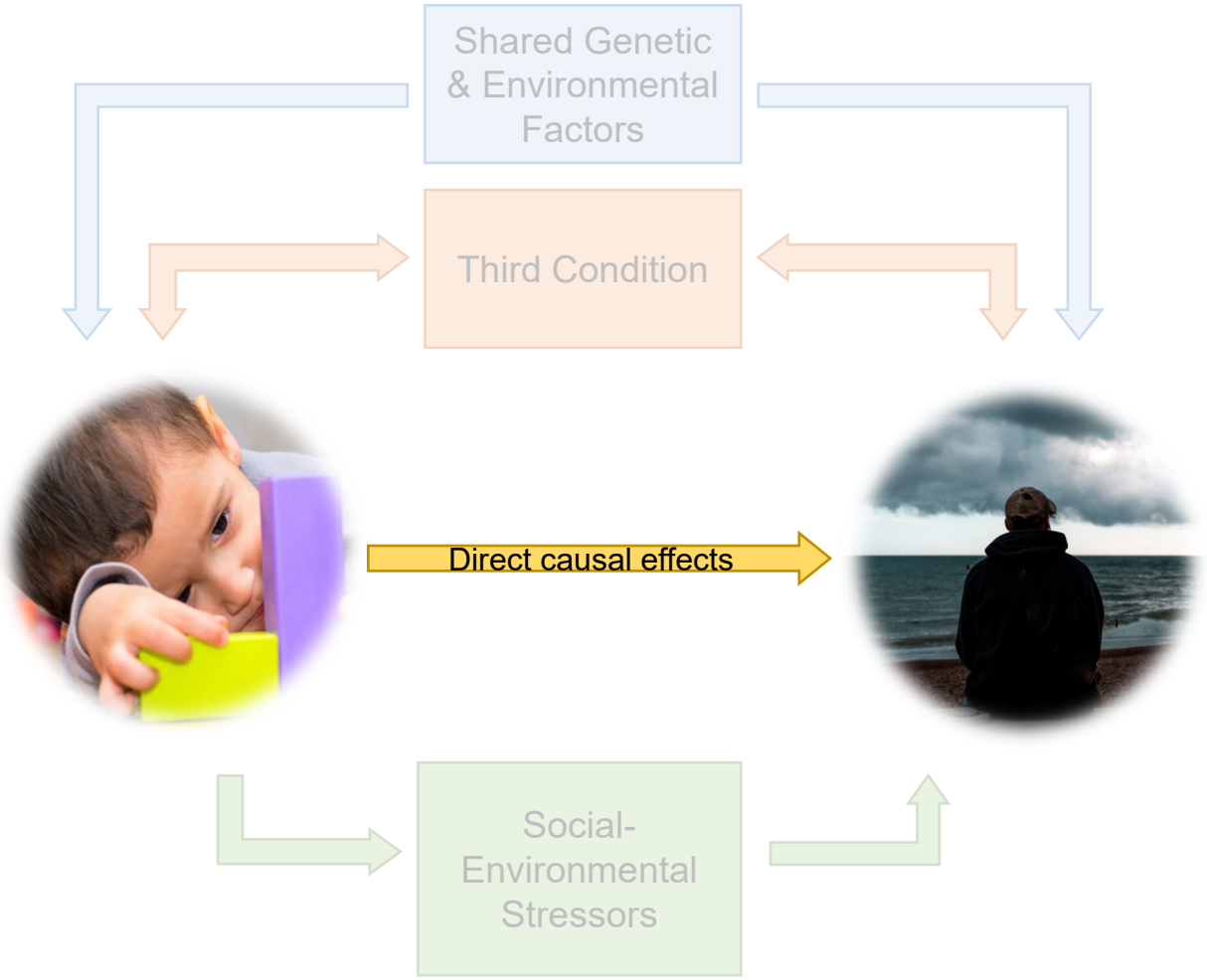
e.g., Demontis *et al.* (2019); Wang *et al.* (2022)

Possible gene-environment correlations

e.g., Ratanatharathorn *et al.* (2021); Zwicker *et al.* (2020)

Thapar, Livingston, Eyre, & Riglin (2023) *JCPP*

3) Direct Causal Effects



Lower Depression in individuals with ADHD when on ADHD medication

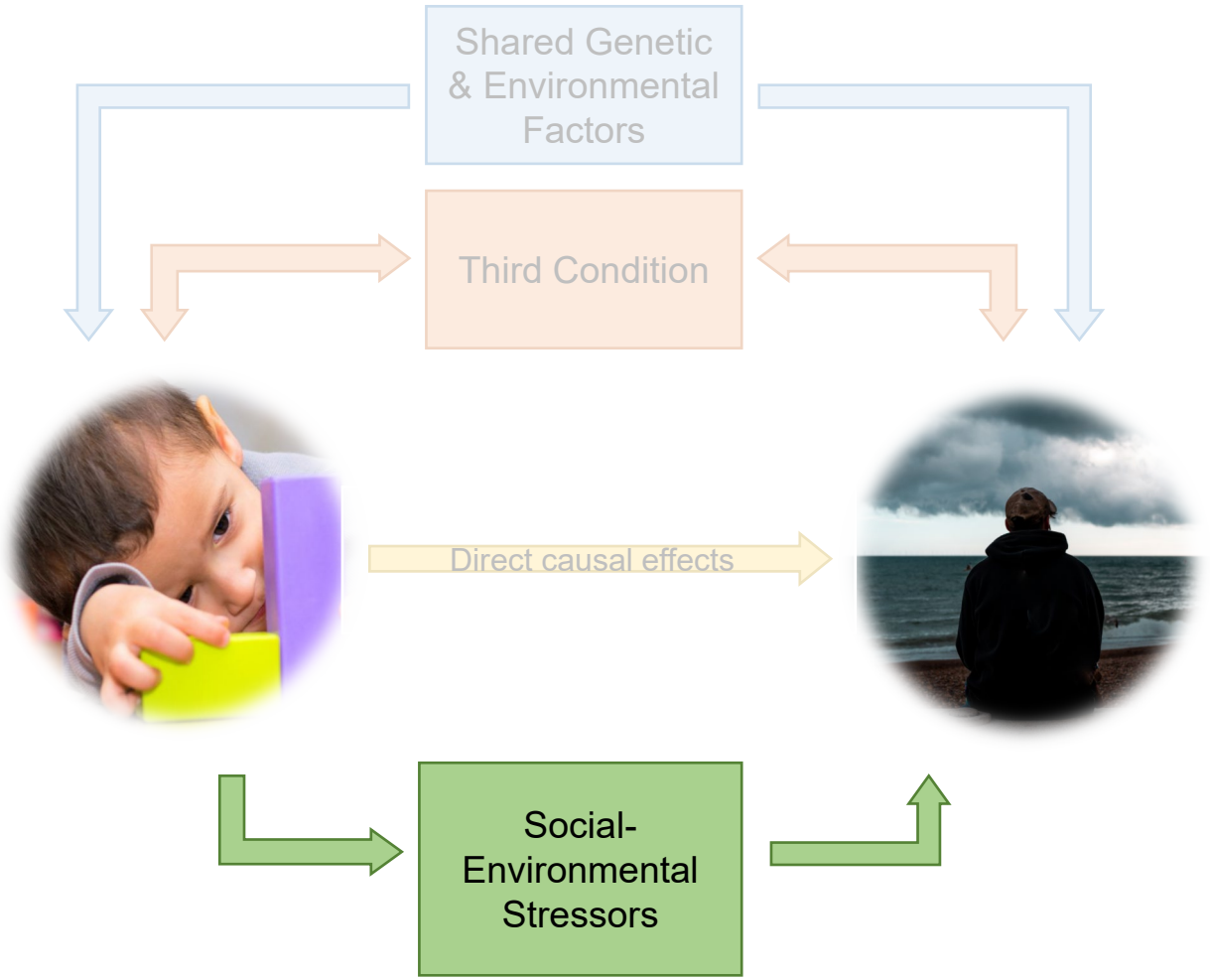
Chang *et al.* (2016)

Mendelian randomisation study suggests causal effect of ADHD on Depression

Riglin *et al.* (2020)

Thapar, Livingston, Eyre, & Riglin (2023) *JCPP*

4) Social-Environmental Stressors



Thapar, Livingston, Eyre, & Riglin (2023) *JCPP*

Mediating roles of stressful family environment, bullying & trauma

e.g., Meinzer *et al.* (2020); Rai *et al.* (2018)

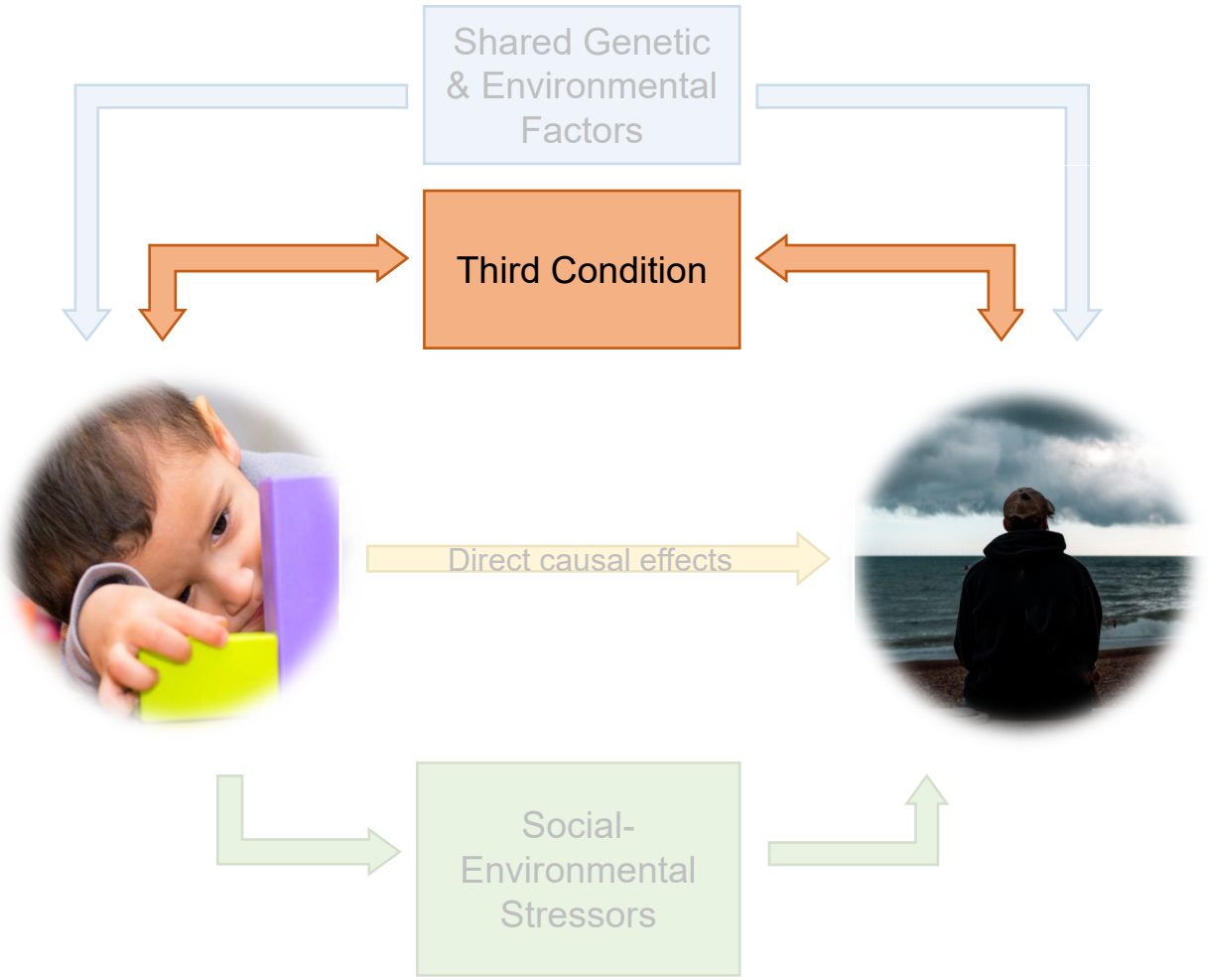
School difficulties in ADHD

e.g., Powell *et al.* (2020)

Loneliness in Autism

e.g., Hedley *et al.* (2018)

5) Third Co-Occurring Condition



Multiple conditions co-occur with both Autism/ADHD & Depression

e.g., Copeland *et al.* (2013)

Mediating roles of emotional dysregulation, irritability & alexithymia

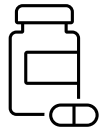
e.g., Eyre *et al.* (2019); Seymour *et al.* (2014)

Thapar, Livingston, Eyre, & Riglin (2023) *JCPP*

How Effective are Assessments & Treatments?

Problems of symptom overlap & lack of validation of Depression measures

Psychological Therapies – family-based approaches in ADHD & modified CBT in Autism



Medication – No RCTs on medication for depression in Autism/ADHD

Thapar, Livingston, Eyre, & Riglin (2023) *JCPP*

Ongoing Issues & Future Directions

? **Cross-sectional evidence** – what about development?

? **Resilience & compensatory strategies?**

e.g., Livingston *et al.* (2019) *Lancet Psychiatry*

? **Autism & ADHD co-occur highly** – time to study them together?

e.g., Thapar *et al.* (2017) *Lancet Psychiatry*

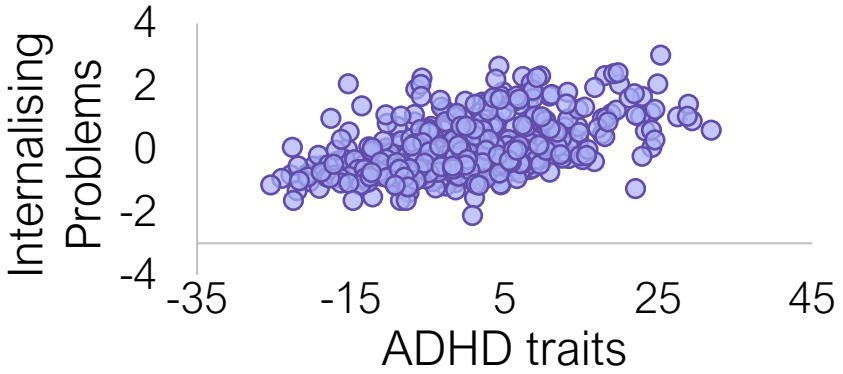
Autistic Versus ADHD Traits?

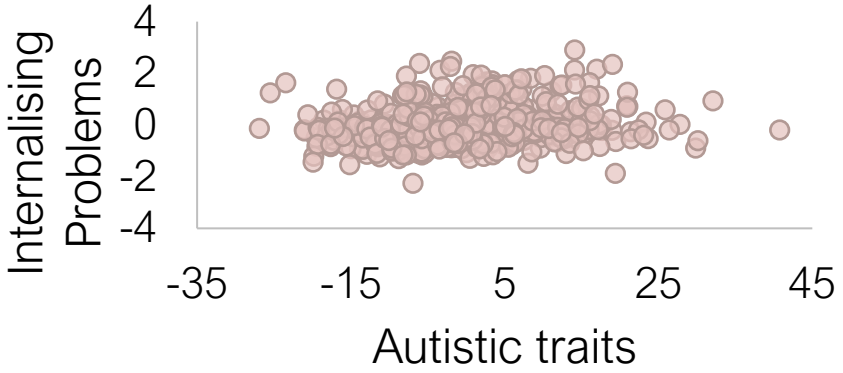
Nationally representative sample of UK adults
(*N* = 504; 49% male; 18-79 years; M_{age} = 45.03, SD_{age} = 15.41)

Autistic Traits	Autism-Quotient Short (AQ-28)	Depression Symptoms	Patient Health Questionnaire (PHQ-9)
ADHD Traits	Adult ADHD Self-report Scale (ASRS-18)	Anxiety Symptoms	Generalised Anxiety Disorder Scale (GAD-7)

Hargitai, Livingston … & Shah (2023) *Sci. Reports*

Autistic Versus ADHD Traits?





Regression, Dominance Analysis & Bayesian Regression

Predictor	*B* [95% CIs]	*SE(B)*	*β*	*p*	sr^2	*GDW**	BF_{10}**
Autistic traits	0.01 [0.01, 0.02]	0.00	.17	< .001	.024	.063	2160.73
ADHD traits	0.04 [0.03, 0.05]	0.00	.49	< .001	.201	.268	1.05×10^{29}
Age	-0.01 [-0.02, -0.01]	0.00	-.17	< .001	.027	.053	-
Sex (0=F, 1=M)	-0.06 [-0.19, 0.08]	0.07	-.03	.390	.001	.003	-
Education level	-0.02 [-0.06, 0.01]	0.02	-.05	.193	.002	.003	-
Overall Model Fit	$F(5, 498) = 63.56$, $p < .001$, $R^2 = 0.39$						

* **General Dominance Weights** from the Dominance Analysis (higher GDW values indicate a more important predictor).

** **Bayes Factor** (higher values indicate greater predictive quality over the null model containing all other variables).

Hargitai, Livingston … & Shah (2023) *Sci. Reports*

Conclusions & Acknowledgements

Depression in Autism/ADHD is **common**

Family history of depression, **social stressors** & other **co-occurring conditions** may heighten depression risk

Challenges with assessment & evidence base for **treatment is limited**

ADHD may be a **more important** predictor than autism

GW4

Economic and Social Research Council

thewaterloofoundation

Wolfson Centre YPMH

CARDIFF UNIVERSITY

Anita Thapar, Lucy Riglin, Olga Eyre

Punit Shah, Luca Hargitai, Lucy Waldren, Ross Robinson

Chris Jarrold

JCPP Review

Hargitai et al.

lucy.livingston@kcl.ac.uk

@Lucy_Livingston