Adverse Childhood Experiences, body weight, and mental health

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Adverse Childhood Experiences (ACEs)

A few caveats on ACEs and ACE scores

- 'ACEs' are a narrowly defined set of adversities, based on a US study
  - They are not the only negative life events that can influence health and wellbeing

- The ACE score adds up the number of ACEs a person has
  - A (somewhat, sometimes) useful research tool, as they acknowledge the co-occurrence of ACEs
  - But…
  - Overly simplistic – ignores very different life stories with the same ACE score
  - Assumes each ACE has an equal effect on health and wellbeing
  - Some advocacy for screening for ACEs in services, despite these challenges and despite evidence the ACE score is a poor screening tool

ACEs and health and wellbeing

Karen Hughes et al. Lancet Public Health 2017
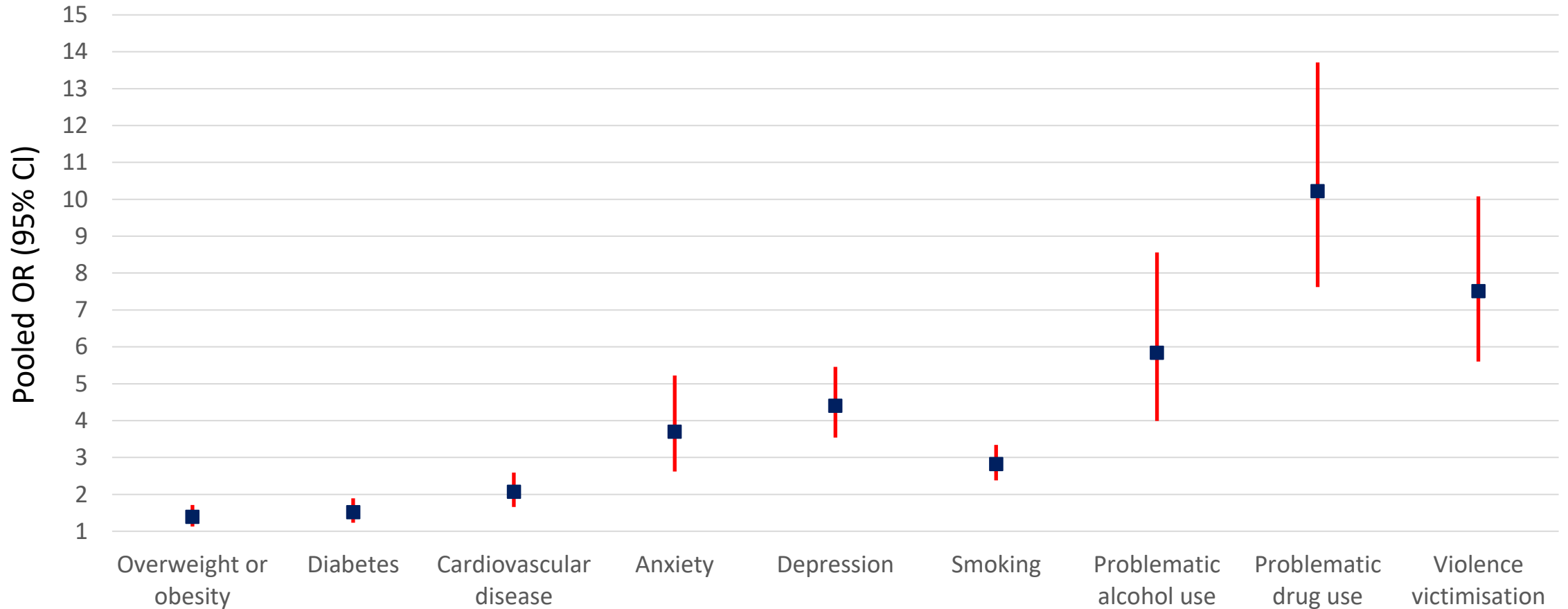
ACEs and body weight

- 4+ ACEs vs 0 ACEs ~ 40% higher risk of overweight or obesity

- The association can go in both directions
  - Higher risk of high body weight
  - Higher risk of multiple types of eating disorder

Avon Longitudinal Study of Parents and Children (ALSPAC)

- Former county of Avon (Bristol)
- >13,000 pregnant women 1991/2
- Questionnaires, clinics, links to routine data

Although ACEs are associated with worse health and wellbeing, what proportion of the cases of health outcomes are attributable to ACEs?

Population Attributable Fraction (PAF)

If we could make the risk of a health outcome the same for people exposed to 4+ ACEs as for 0 ACEs, what proportion of the cases of that health outcome could we prevent?

		Obesity	
	%	Risk difference (95% CI)	PAF (%)
4 or more ACEs	16.6	0.02 (-0.00 to 0.04)	5%
Low maternal education	19.4	0.05 (0.03 to 0.07)	13%
Manual social class	16.8	0.04 (0.02 to 0.06)	9%
Maternal depression in pregnancy	17.3	0.02 (-0.00 to 0.04)	4%
Any maternal smoking in pregnancy	17.9	0.04 (0.02 to 0.06)	10%
Social housing	8.5	0.11 (0.07 to 0.15)	**14%**
Mother aged 19 years or lower at birth	1.7	0.05 (-0.02 to 0.12)	1%

Houtepen et al. Plos Med 2020

		Depression	
	%	Risk difference (95% CI)	PAF (%)
4 or more ACEs	16.6	0.06 (0.04 to 0.08)	**14%**
Low maternal education	19.4	0.005 (-0.02 to 0.02)	1%
Manual social class	16.8	0.02 (-0.01 to 0.04)	3%
Maternal depression in pregnancy	17.3	0.04 (0.02 to 0.06)	8%
Any maternal smoking in pregnancy	17.9	0.05 (0.03 to 0.07)	10%
Social housing	8.5	0.06 (0.03 to 0.09)	6%
Mother aged 19 years or lower at birth	1.7	0.11 (0.02 to 0.19)	2%

Houtepen et al. Plos Med 2020

	%	Illicit drug use	
		Risk difference (95% CI)	PAF (%)
4 or more ACEs	16.6	0.12 (0.09 to 0.15)	**15%**
Low maternal education	19.4	-0.02 (-0.04 to 0.01)	2%
Manual social class	16.8	0.05 (0.02 to 0.07)	5%
Maternal depression in pregnancy	17.3	0.05 (0.02 to 0.08)	6%
Any maternal smoking in pregnancy	17.9	0.09 (0.06 to 0.12)	10%
Social housing	8.5	0.05 (0.01 to 0.09)	3%
Mother aged 19 years or lower at birth	1.7	0.10 (0.01 to 0.20)	1%

Poor Individual Risk Classification From Adverse Childhood Experiences Screening

Check for updates

Alan J. Meehan, PhD,[1,2] Jessie R. Baldwin, PhD,[1,3] Stephanie J. Lewis, MRCPsych,[4] Jelena G. MacLeod, MD,[2,5] Andrea Danese, MD, PhD[1,4,6]

Introduction: Adverse childhood experiences confer an increased risk for physical and mental health problems across the population, prompting calls for routine clinical screening based on reported adverse childhood experience exposure. However, recent longitudinal research has questioned whether adverse childhood experiences can accurately identify ill health at an individual level.

Methods: Revisiting data collected for the Adverse Childhood Experience Study between 1995 and 1997, this study derived approximate area under the curve estimates to test the ability of the retrospectively reported adverse childhood experience score to discriminate between adults with and without a range of common health risk factors and disease conditions. Furthermore, the classification accuracy of a recommended clinical definition for high-risk exposure (≥4 versus 0−3 adverse childhood experiences) was evaluated on the basis of sensitivity, specificity, positive and negative predictive values, and positive likelihood ratios.

"These findings suggest that screening based on the adverse childhood experience score does not accurately identify those individuals at high risk of health problems. This can lead to both allocation of unnecessary interventions and lack of provision of necessary support."

Association or causation

A genetically informed Registered Report on adverse childhood experiences and mental health

Jessie R. Baldwin [1,2] ✉, Hannah M. Sallis [3,4,5,6], Tabea Schoeler [1], Mark J. Taylor[7], Alex S. F. Kwong [3,8], Jorim J. Tielbeek[9], Wikus Barkhuizen [1], Varun Warrier [10], Laura D. Howe[3], Andrea Danese [2,11,12], Eamon McCrory [1,13], Fruhling Rijsdijk[14], Henrik Larsson [7,15], Sebastian Lundström [16,17], Robert Karlsson [7], Paul Lichtenstein [7], Marcus Munafò [3,4,5] & Jean-Baptiste Pingault[1,2]

Association or causation

nature human behaviour

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adverse childho

health

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Childhood Maltreatment and Mental Health Problems: A Systematic Review and Meta-Analysis of Quasi-Experimental Studies

Jessie R. Baldwin ✉, Ph.D., Biyao Wang, Ph.D., Lucy Karwatowska, M.Sc., Tabea Schoeler, Ph.D., Anna Tsaligopoulou, B.A., Marcus R. Munafò, Ph.D., Jean-Baptiste Pingault, Ph.D.

Poverty and ACEs

Table 4. Association Between Gender and Poverty With Adversity Clusters in ALSPAC.

	"Low ACEs"	"Parental Separation and Mother's Mental Health Problems"	"Parental Mental Health Problems, Convictions and Separation"	"Abuse and Mother's Mental Health Problems"	"Poly Adversity"
% of sample in each class	54.4%	18.2%	15.3%	5.7%	6.4%
	Odds Ratios (95% CI)	Odds Ratios (95% CI)	Odds Ratios (95% CI)	Odds Ratios (95% CI)	Odds Ratios (95% CI)
Gender (girls vs. boys)	Reference	1.26 [0.60, 2.65]	1.44 [0.59, 3.52]	0.71 [0.45, 1.11]	1.21 [0.88, 1.67]
Poverty (yes vs. no)	Reference	3.62 [1.26, 10.41]	4.51 [2.02, 10.06]	2.29 [0.96, 5.45]	9.15 [5.77, 14.51]

Note. ALSPAC = Avon Longitudinal Study of Parents and Children; ACEs = adverse childhood experiences; CI = confidence interval.
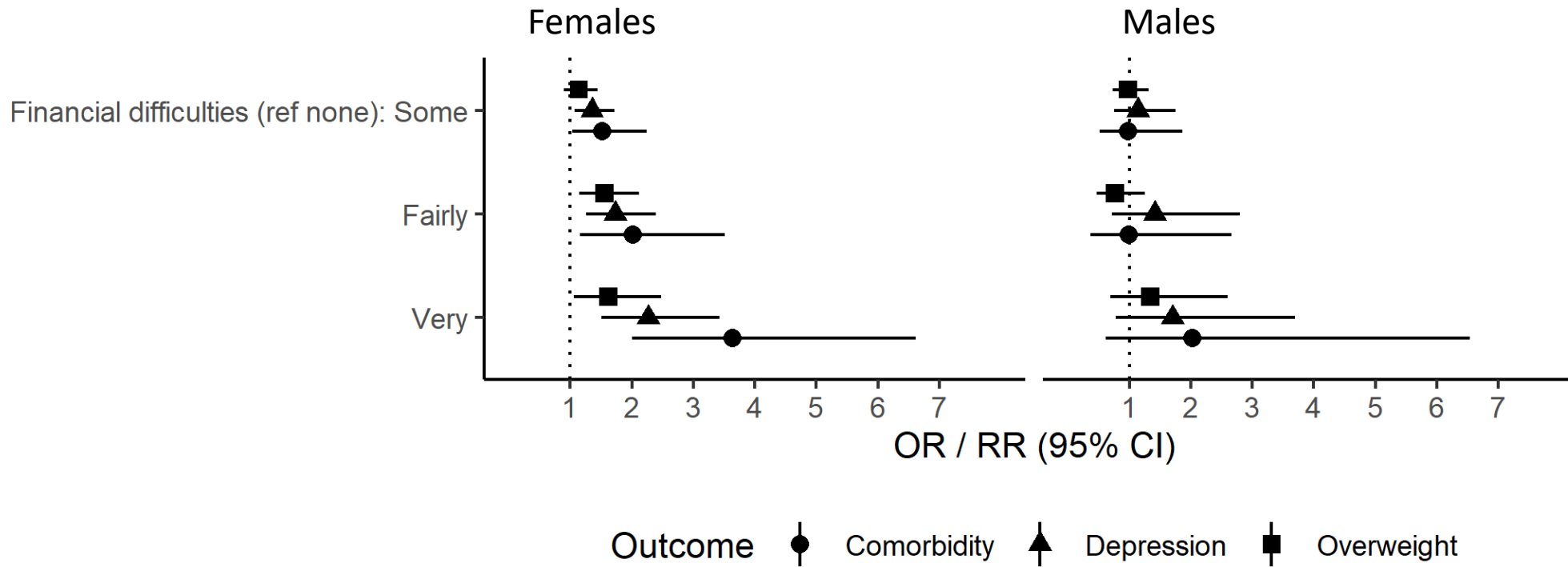
Lacey RE, Howe LD, et al. J Interpersonal Violence 2020

Overweight/depression comorbidity
ALSPAC data, age 24y

	Females	Males
Has neither depression nor overweight	46%	47%
Depressed	14%	11%
Overweight	27%	33%
Comorbidity	13%	8%

Preliminary data; Dr Fanny Kilpi

Poverty and overweight/depression comorbidity
ALSPAC data, age 24y

Preliminary data; Dr Fanny Kilpi

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Derivation of ACE measures in ALSPAC

Fanny Kilpi
Poverty and obesity/ depression comorbidity

Becca Lacey
Poverty and ACE clusters