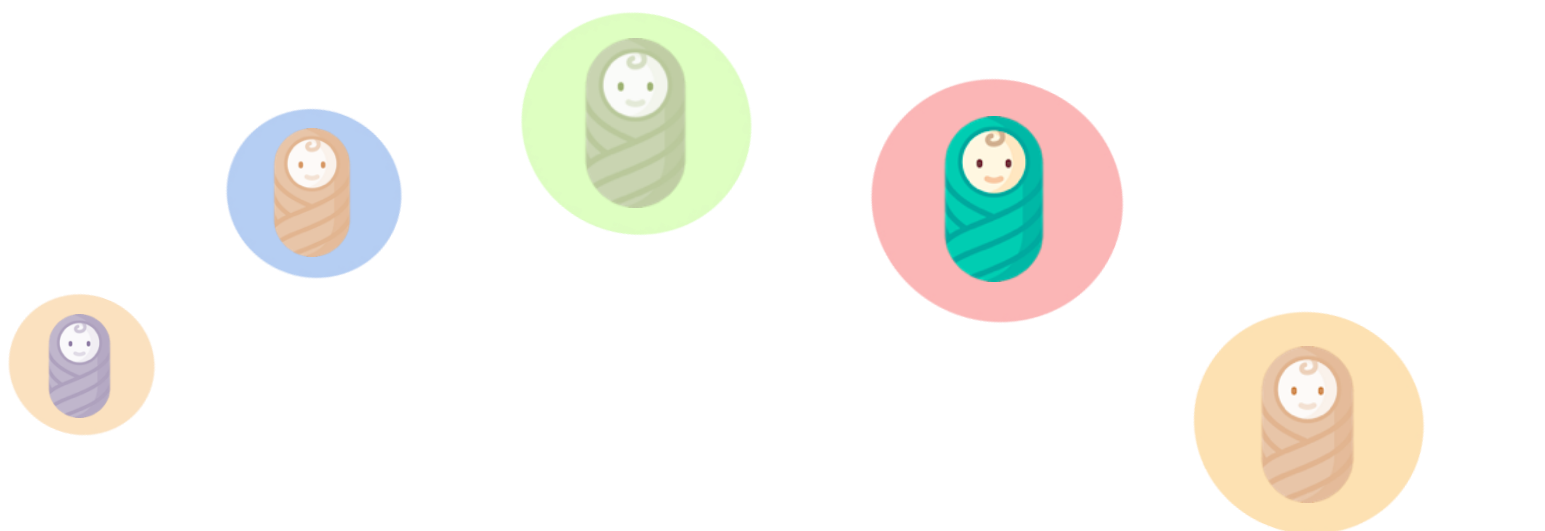


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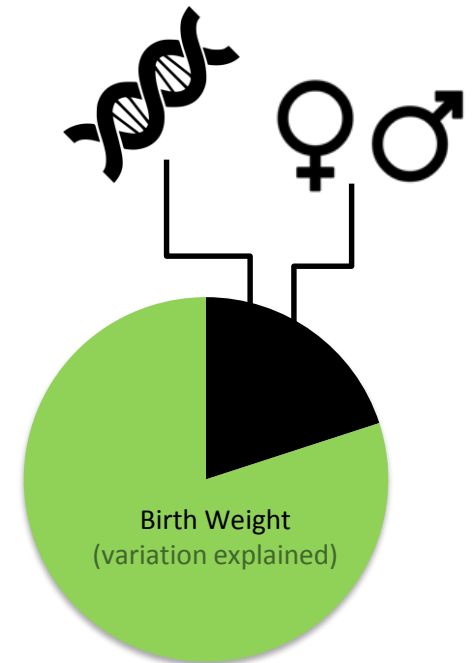
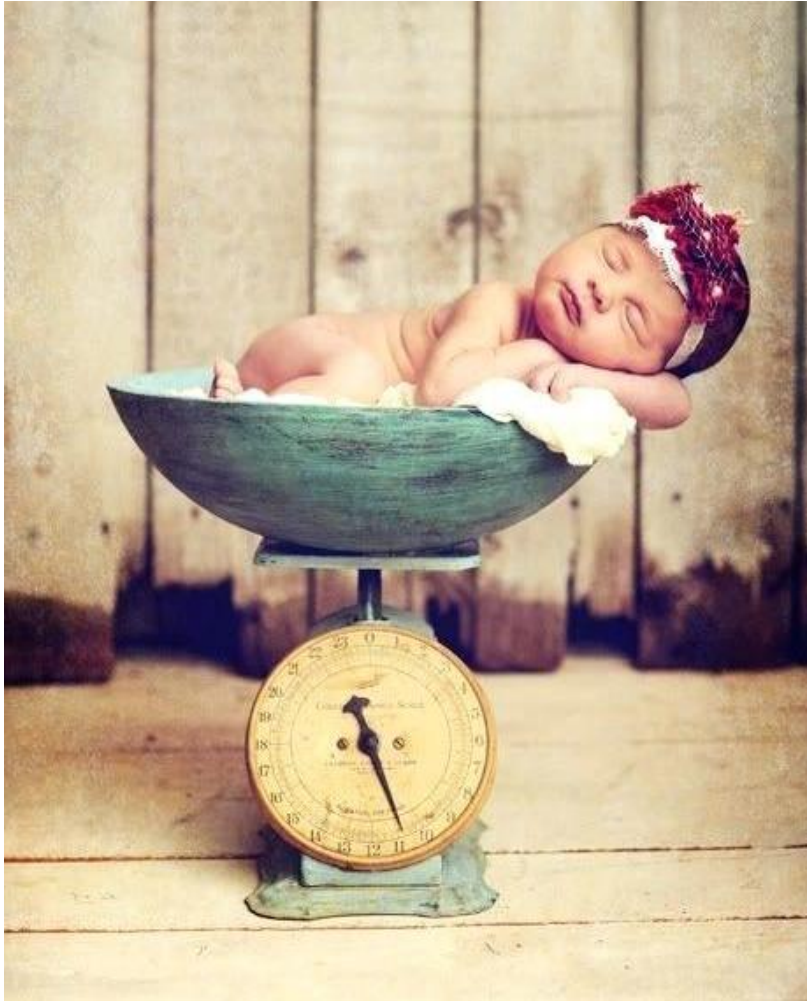


Mental Health Trajectories of Children across the Birthweight Spectrum

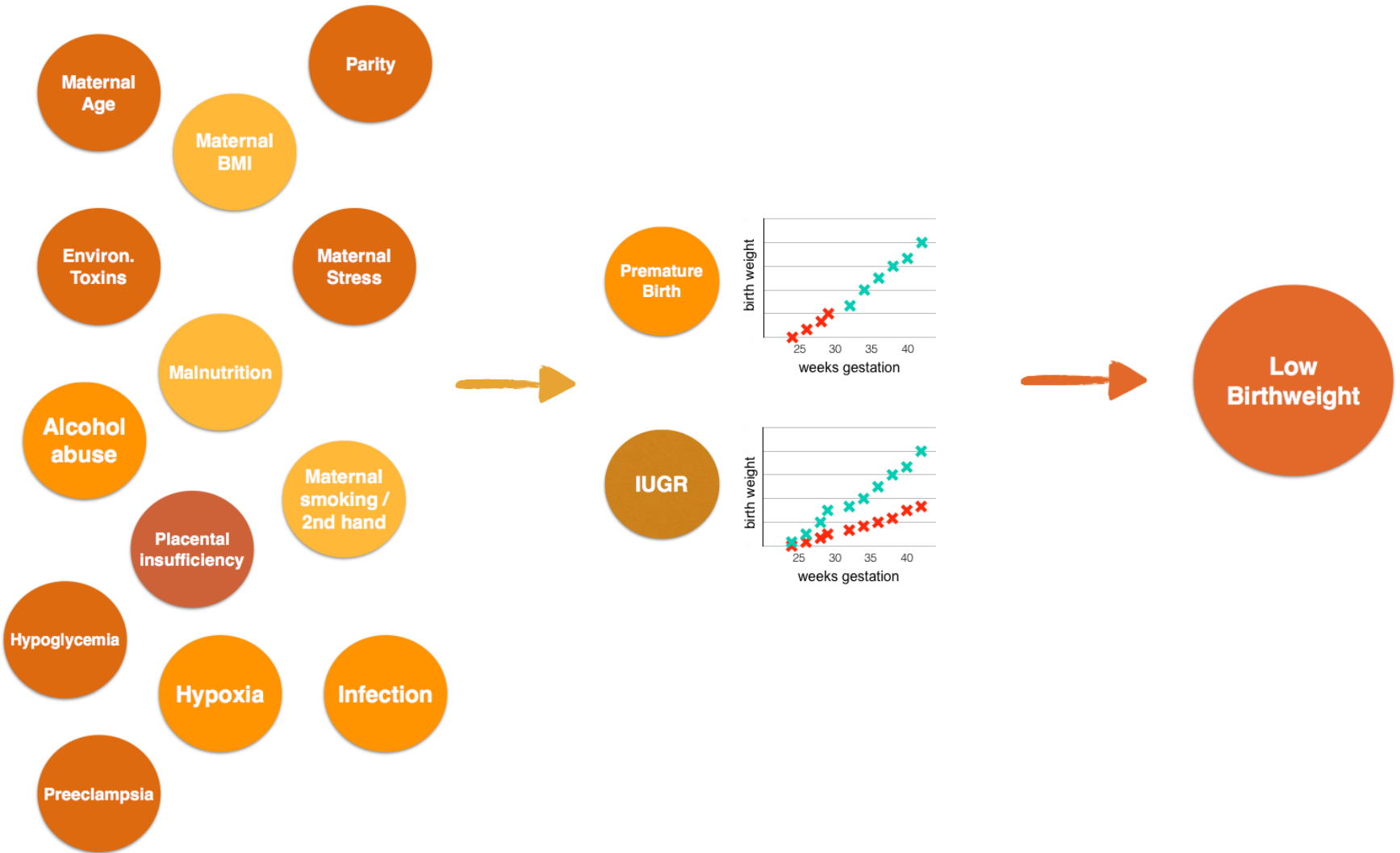
Niamh Dooley, Dr Mary Clarke, Prof Mary Cannon
Dept of Psychiatry, Royal College of Surgeons in Ireland



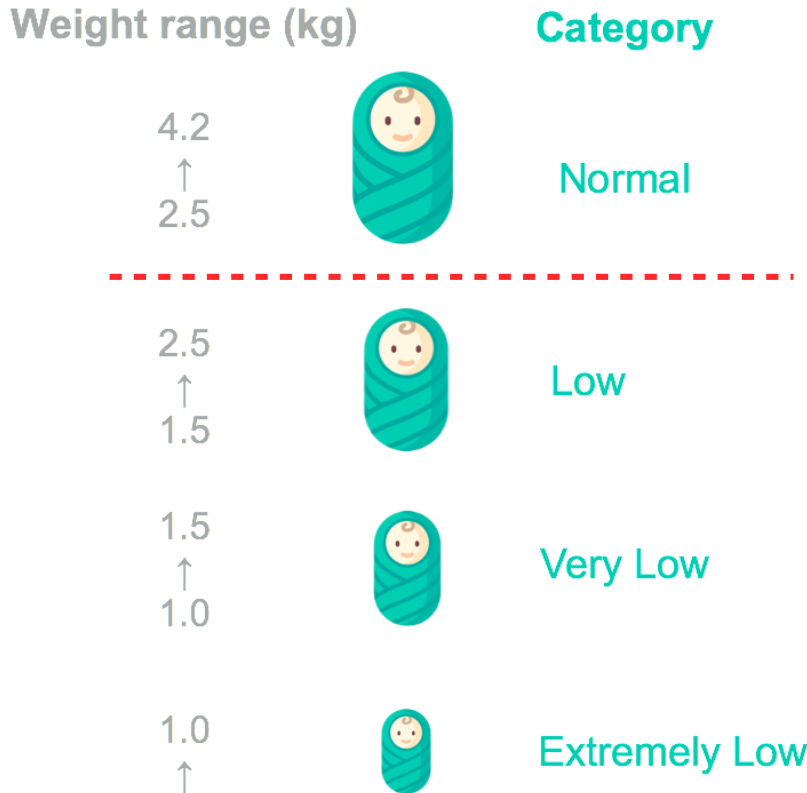
What determines birth weight?



What determines low birth weight?



Low birth weight poses a risk to mental health



Mental Health of Extremely Low Birth Weight Survivors: A Systematic Review and Meta-Analysis

Karen J. Mathewson, Cheryl H. T. Chow, Kathleen G. Dobson, Eliza I. Pope, Louis A. Schmidt,
and Ryan J. Van Lieshout
McMaster University

Although individuals born at extremely low birth weight (ELBW; < 1,000 g) are the most vulnerable of all preterm survivors, their risk for mental health problems across the life span has not been systematically reviewed. The primary objective of this systematic review and meta-analysis was to ascertain whether the risk for mental health problems is greater for ELBW survivors than their normal birth weight (NBW) peers in childhood, adolescence, and adulthood. Forty-one studies assessing 2,712 ELBW children, adolescents, and adults and 11,127 NBW controls were reviewed. **Group differences** in mental health outcomes were assessed using random effects meta-analyses. The impacts of birthplace, birth era, and neurosensory impairment on mental health outcomes were assessed in subgroup analyses. Children born at ELBW were reported by parents and teachers to be **at significantly greater risk than NBW controls for inattention and hyperactivity, internalizing, and externalizing symptoms.** ELBW children were also at greater risk for conduct and oppositional defiant disorder, anxiety, and social difficulties. Risks for parent-reported inattention and hyperactivity were greater in adolescents born at ELBW. In

Psychological Medicine (2011), 41, 2463-2474. © Cambridge University Press 2011
doi:10.1017/S003329171100081X

ORIGINAL ARTICLE

Prevalence of psychiatric diagnoses in preterm and full-term children, adolescents and young adults: a meta-analysis

A. C. Burnett^{1,2,3}, P. J. Anderson^{3,4}, J. Cheong^{5,6}, L. W. Doyle^{3,4,5,6}, C. G. Davey^{2,3} and S. J. Wood^{2,8}

¹ Department of Psychology, The University of Melbourne, VIC, Australia

² Melbourne Neuropsychiatry Centre, Department of Psychiatry, The University of Melbourne and Melbourne Health, Australia

³ Murdoch Childrens Research Institute, Parkville, VIC, Australia

⁴ Department of Paediatrics, The University of Melbourne, VIC, Australia

⁵ Department of Obstetrics and Gynaecology, Royal Women's Hospital, The University of Melbourne, VIC, Australia

⁶ Neonatal Services, Royal Women's Hospital, VIC, Australia

⁷ Centre for Youth Mental Health, The University of Melbourne, VIC, Australia

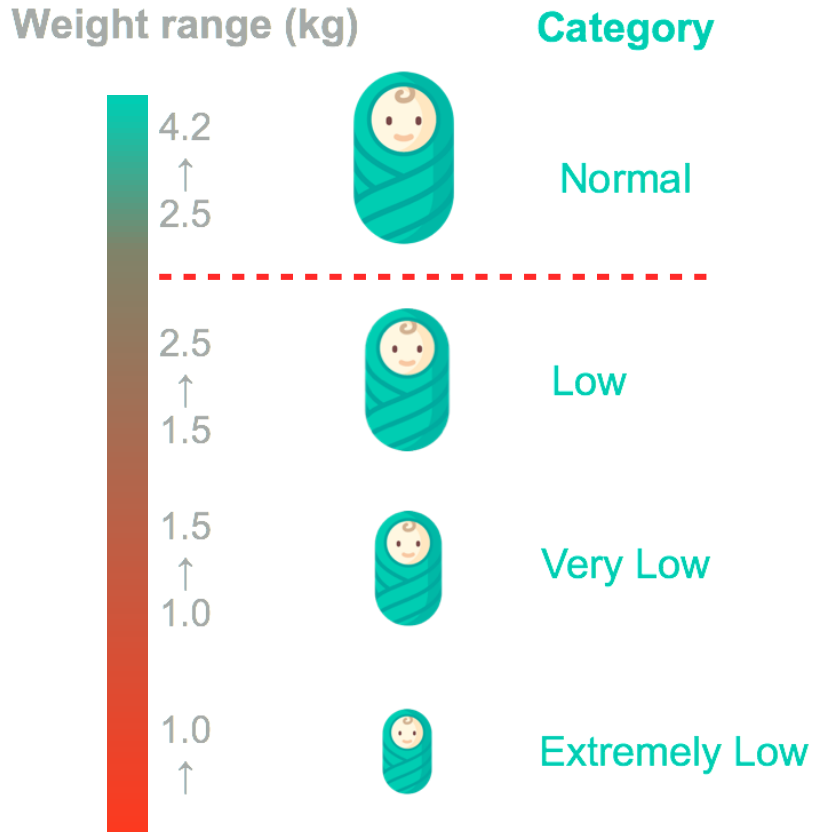
⁸ School of Psychology, University of Birmingham, Edgbaston, Birmingham, UK

Background. Preterm (PT) birth and low birth weight (LBW) are high-prevalence events that are associated with adverse outcomes in the longer term, with vulnerability increasing as maturity at birth decreases. Psychiatric symptomatology appears heightened in PT/LBW survivors, though there are some discordant findings from studies using questionnaire measures, particularly with respect to anxiety and depressive symptoms.

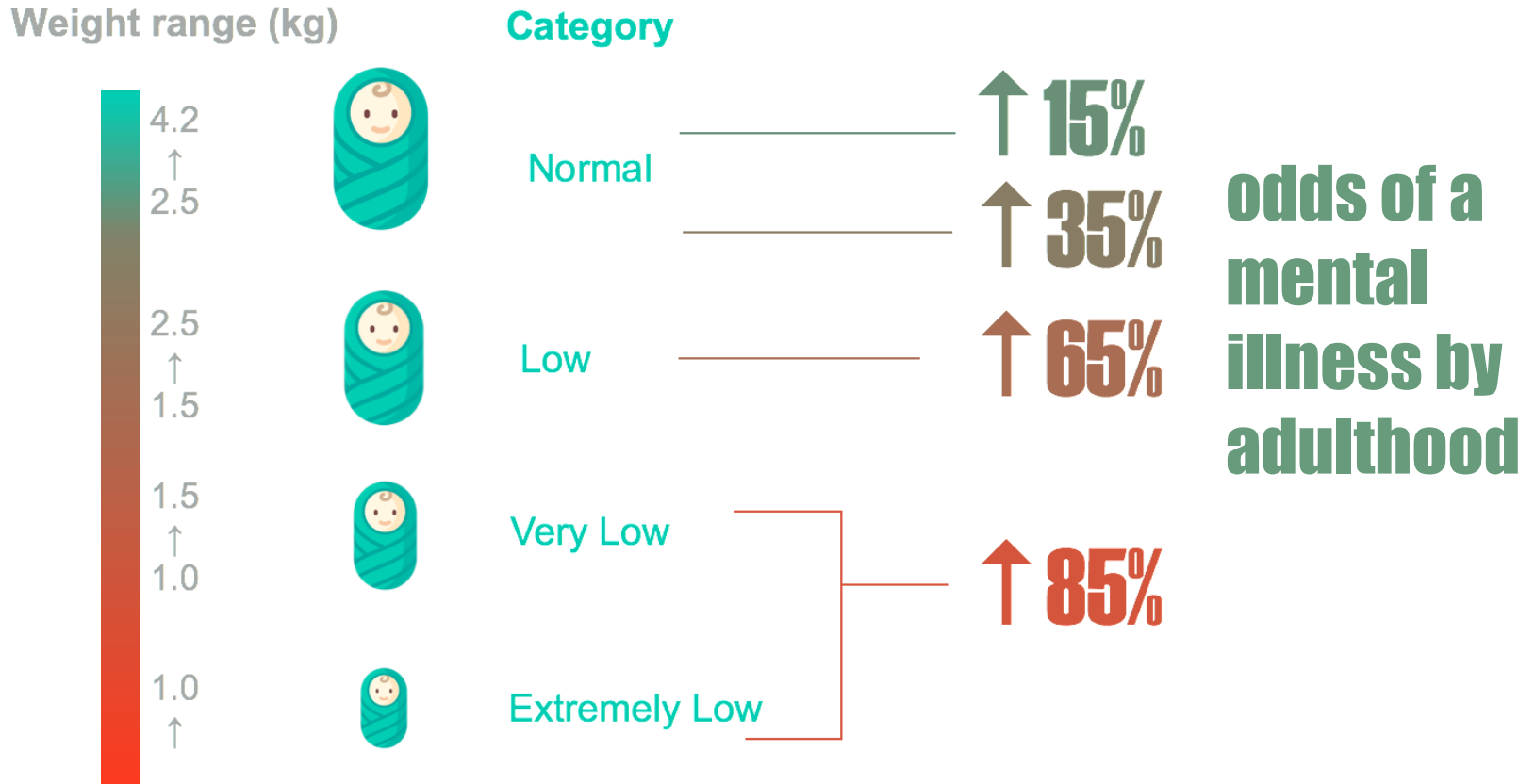
Method. This article synthesises findings from research using clinical psychiatric diagnostic criteria in PT/LBW individuals aged 10-25 years compared with term-born peers. Key outcomes of interest were the rates of individuals receiving any psychiatric diagnosis and the number of diagnoses of anxiety or depressive disorders.

Results. A literature search for studies reporting prevalence of 'any diagnosis' yielded five studies that met inclusion criteria, with a total of 565 PT/LBW and 533 control individuals. Also, five studies were found that reported rates of anxiety/depression (692 PT/LBW and 605 control individuals). The risk of these outcomes was increased for PT/LBW individuals compared with controls [any diagnosis: odds ratio (OR) 3.66, 95% confidence interval (CI) 2.57-5.21; anxiety or depressive disorder: OR 2.86, 95% CI 1.73-4.73].

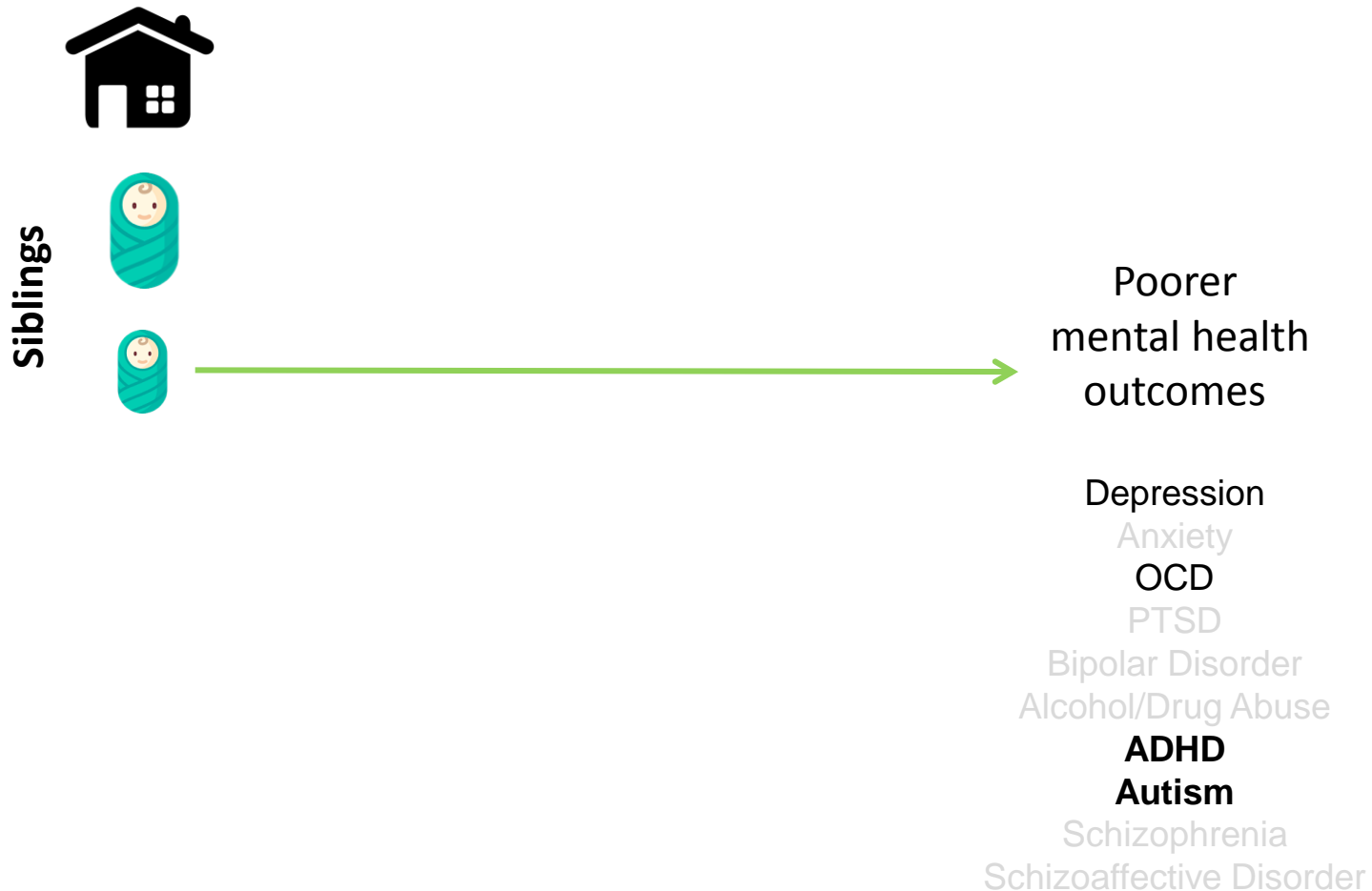
Lower birth weight poses a risk to mental health



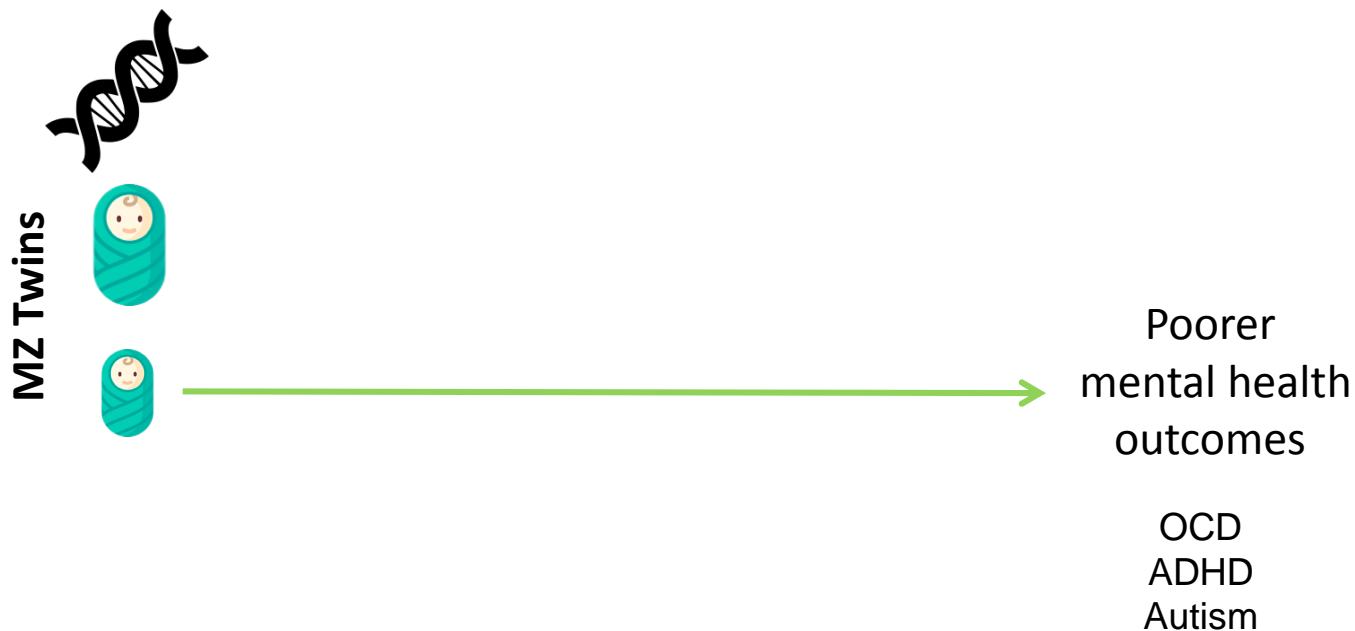
Lower birth weight poses a risk to mental health



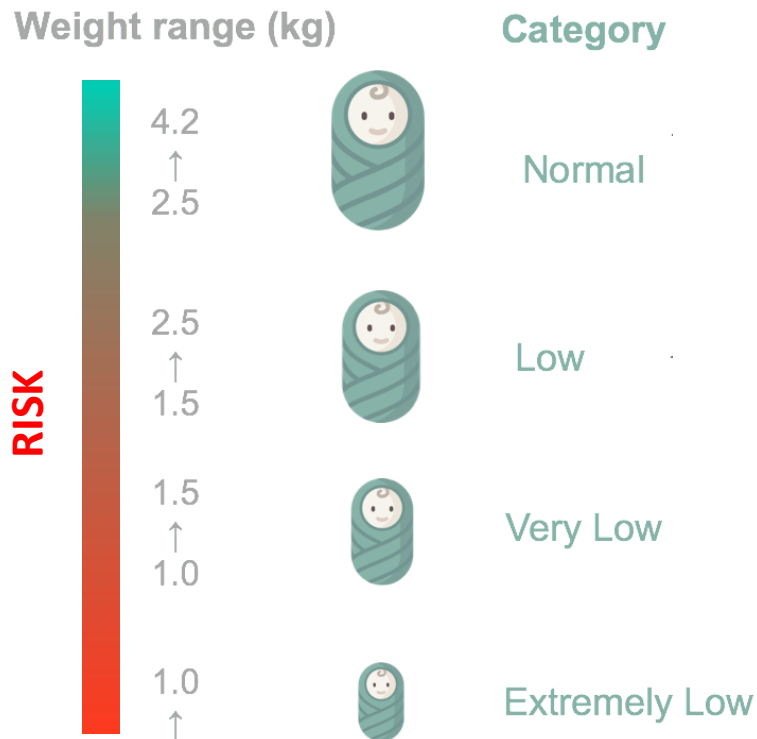
“Birth weight-Mental Health” link not fully explained by household or genetic factors



“Birth weight-Mental Health” link not fully explained by household or genetic factors



Unanswered Questions



Why would birth weight affect mental health?

- Underdeveloped brain regions or networks?
- Differential parental treatment?
- Susceptible immune system (systemic inflammation)?

How does mental illness develop from low birth weight?

- Is it a risk for *all types* of mental health issue?
- Low BW -> specific MH issue -> cascade of MH issues?

Method

Child mental health

x 3 measures

Child chronic physical illness (1/0)

Household socioeconomics (parental edu,
occupation & equivalised hsd income)

Parental History of
Mental Illness (1/0)

Birth weight (kg)

Premature?



9 yr olds



13 yr olds



17 yr olds



N =

7,568



6,576



5,334

Included in
analysis

Min - Max = 8 - 10 yrs
51% Male

Min - Max = 12 - 14 yrs
51% Male

Min - Max = 16 - 18 yrs
51% Male

Mental Health measured 3 ways

1 Existence of a chronic **mental or behavioural problem**



2 Lifetime Dx (diagnosis) of **Depression/Anxiety, Autism & ADHD**



3 Score on **SDQ** (Strengths & Difficulties Questionnaire)



Results (1): Existence of a mental health problem

Controlling for:

Timing of birth
(late, early, v early)

Gender (m/f)

Child's physical health
(1/0)

Household
socioeconomics
(measured 3 ways)

Parental Hx of Mental
Illness



age 9

birthweight
OR n.s.



age 13

birthweight
OR = 1.87 ($p = .002$)
[95% CI: 1.26, 2.78]



age 17

birthweight
OR = 1.43 ($p = .03$)
[95% CI: 1.04, 1.97]

Results (2): Specific Diagnoses

Controlling for:

Timing of birth
(late, early, v early)

Gender (m/f)

Child's physical health
(1/0)

Household
socioeconomics
(measured 3 ways)

Parental Hx of Mental
Illness

DIAGNOSIS BY 17

Depression/Anxiety

Autism

ADHD

COHORT %

10%
(545)

2%
(93)

3%
(161)

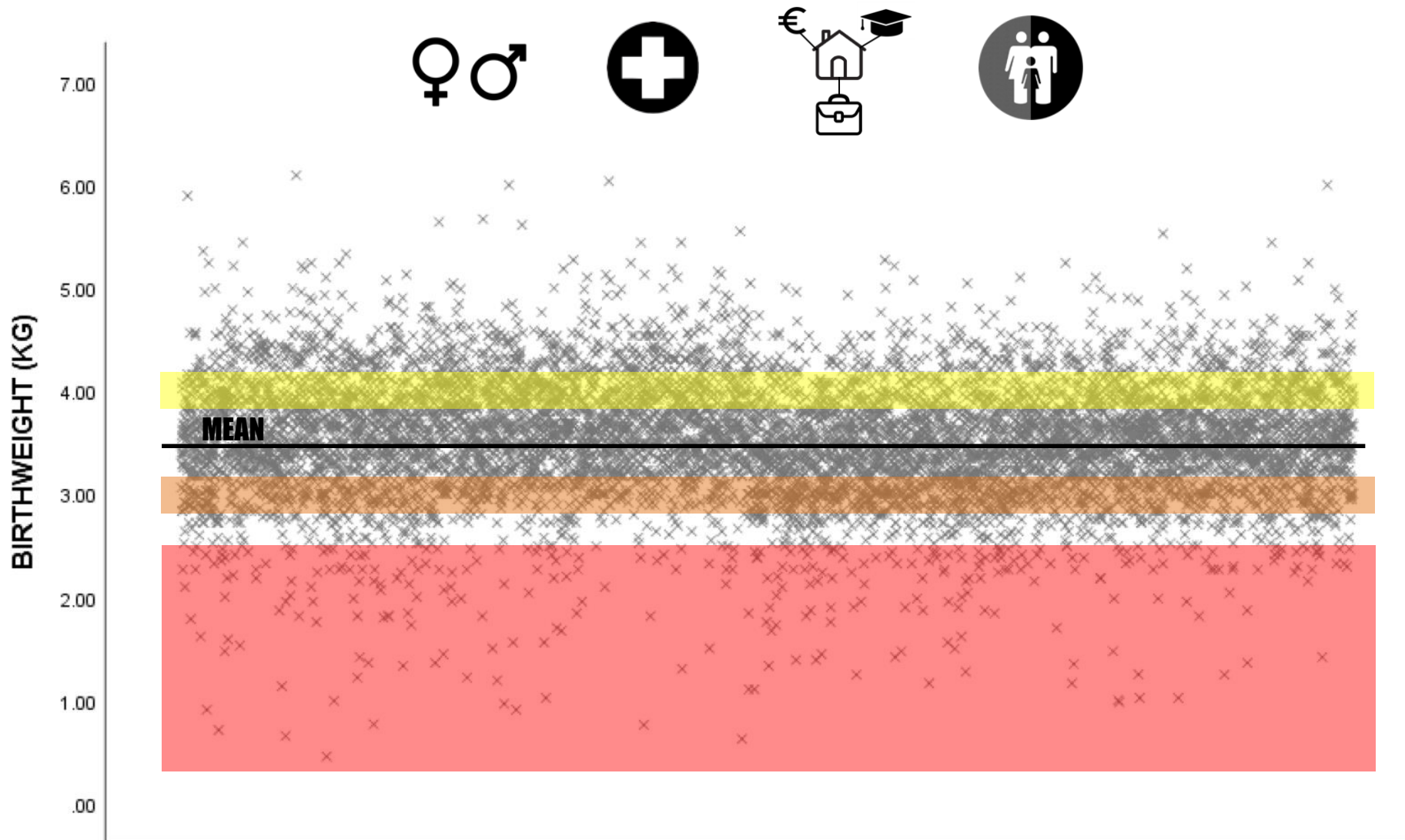
ADJUSTED EFFECT OF BW

birthweight
OR = n.s.

birthweight
OR = n.s.

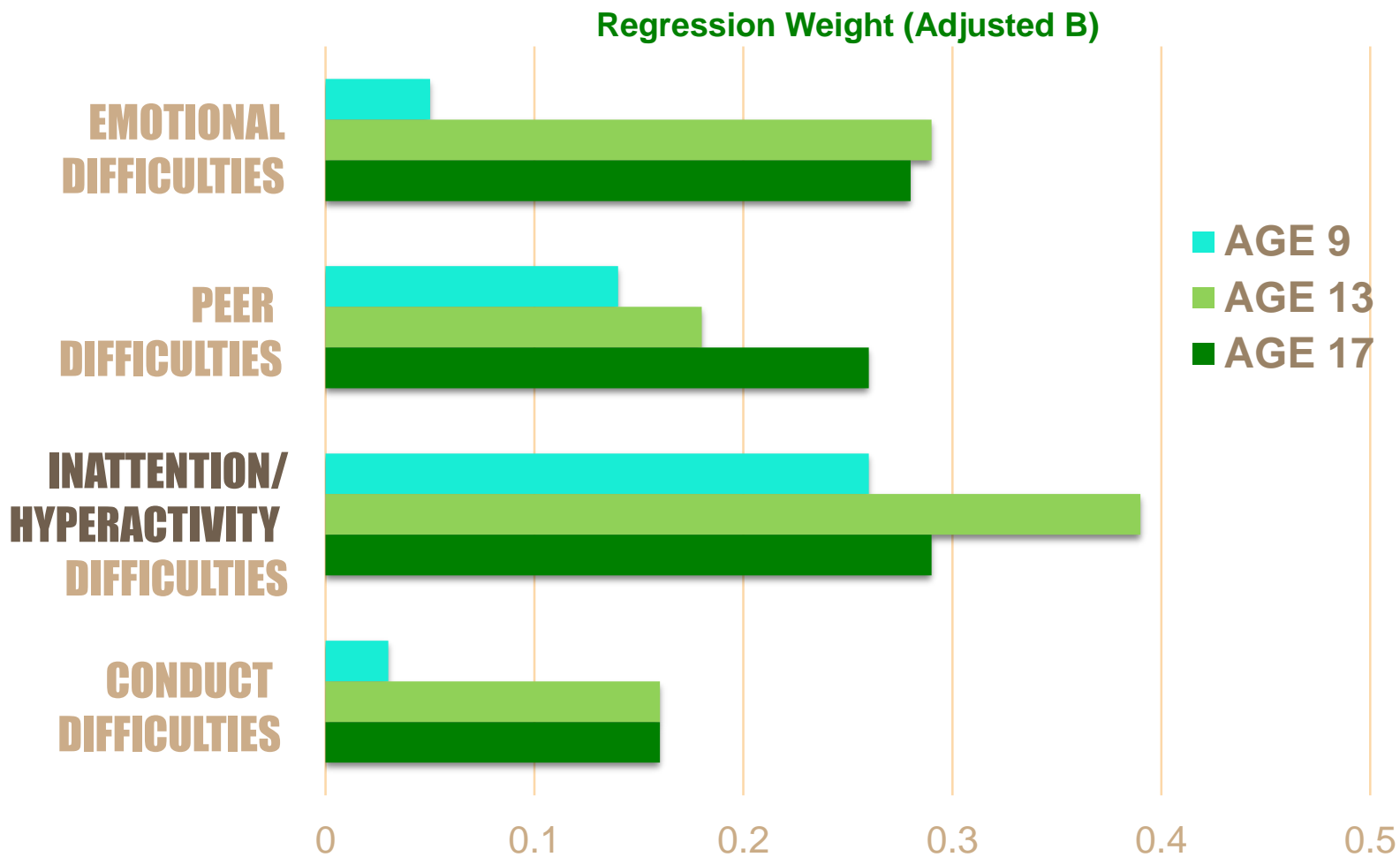
birthweight
OR = 2.71 ($p < .001$)
[95% CI: 1.71, 4.28]

To put that in context...



Results (3): Scores on the SDQ

**STRENGTHS & DIFFICULTIES
QUESTIONNAIRE***



*Primary Caregiver report

Conclusions

How does mental illness develop from low birth weight?

- Is it a risk for *all types* of mental health issue? **No**
- Low BW -> specific MH issue -> cascade of MH issues? **Potentially ADHD Sx**

- Lower birthweight poses a risk to mental health.
 ↓1kg linked to ↑87% odds of prob @ 13
- Lower birthweight predicts diagnosis of ADHD
 ↓1kg linked to ↑171% odds of Dx before 17
- Effect of birthweight on **SDQ** scores strongest for **attention & hyperactivity** difficulties.



PETTERSSON ET AL. (2015)

Birth weight as an independent predictor of ADHD symptoms: A within-twin pair analysis

Erik Pettersson, PhD¹, Arvid Sjölander, PhD¹, Catarina Almqvist, MD, PI Anckarsäter, MD, PhD³, Brian M. D'Onofrio, PhD⁴, Paul Lichtenstein, PhD¹

¹Department of Medical Epidemiology and Biostatistics, Karolinska Institutet,

²Astrid Lindgren Children's Hospital, Lung and Allergy Unit, Karolinska Unive Stockholm Sweden

³Forensic Psychiatry, Institute of Neuroscience and Physiology, Sahlgren's A of Gothenburg, Sweden

⁴Department of Psychological and Brain Sciences, Indiana University, Bloom

Abstract

JOHNSON & MARLOW (2011)

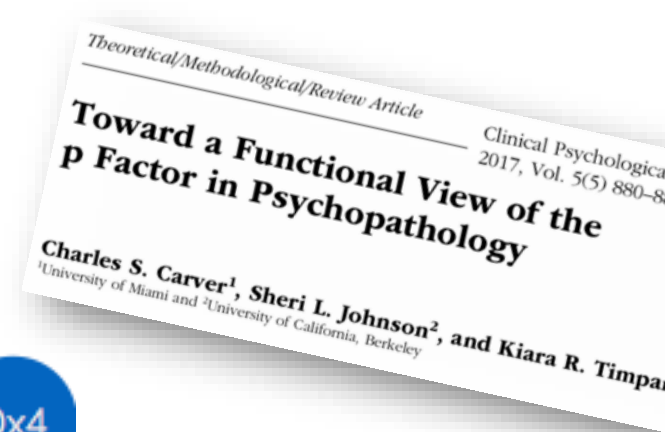
Attention Deficit/Hyperactivity Disorder

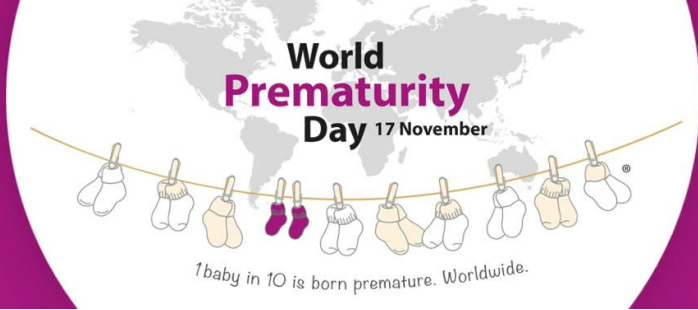
ADHD is the most prevalent and frequently studied psychiatric disorder in preterm/LBW populations. All but one (51) of the earliest studies using DSM-based questionnaires reported a significant excess of ADHD with prevalence rates ranging 16 to 19% and ORs of 2 to 3 in VLBW/ELBW children (41,42,52). More recent studies report prevalence estimates of 9 to 11% in VPT/VLBW (26,53) and 17 to 20% in EPT/

Conclusions

The "P" Factor

P = general risk for all psychopathology





THE IRISH TIMES

Number of Irish babies born with low birth weight on the rise

Proportion of babies with low birth weight grew from 4.9% in 2000 to 5.9% in 2015

© Thu, May 16, 2019, 00:00

Paul Cullen



The number of Irish babies born with low birth weight is rising at a rate exceeded only by Czech income countries. Photograph: iStock

An increasing number of Irish babies are being born with low putting them at increased risk of health issues during life, a international study shows.

The proportion of Irish babies born with low birth weight grew cent in 2000 to 5.9 per cent in 2015, against international trend to the study published in The Lancet Global Health.

While all 195 member states of the World Health Organisation a 30 per cent reduction in low birth weight prevalence by 2020 are rising at a rate exceeded only by Czechia among higher inc

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Asia China India

'Tiniest baby boy' ever sent home leaves Tokyo hospital

© 27 February 2019

KEIO UNIVERSITY HOSPITAL

... and weighing a healthy 3.2kg - twelve times his birth weight - just before he left hospital

A baby boy who weighed just 268g (9.45oz) at birth has been released from hospital in Japan, and is believed to be the smallest boy in the world to have been successfully treated.

THE IRISH TIMES

Mon, Mar 4, 2019

NEWS SPORT BUSINESS OPINION LIFE & STYLE CULTURE

Health & Family Parenting Fitness Get Swimming Get Running The Health Centre

Prematurity: Big developments in care of tiny babies

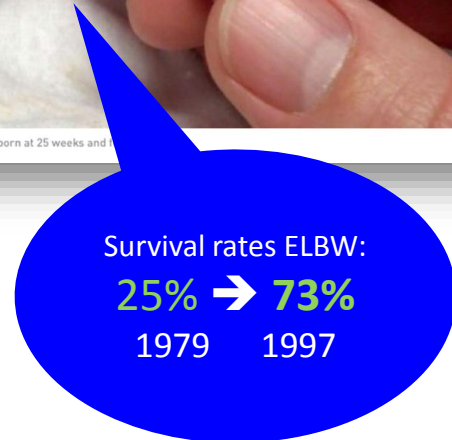
Despite being a young area of medicine, neonatology is proving very dynamic

© Tue, Nov 18, 2014, 14:00 Updated: Tue, Nov 18, 2014, 19:19

Michelle McDonagh



Sophia Ryan was born at 25 weeks and





Thank You!

Niamh Dooley, Dr Mary Clarke, Prof Mary Cannon
Dept of Psychiatry, Royal College of Surgeons in Ireland



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