Unmet Needs for Prevention and Intervention in Three Examples: Prematurity, Infant Regulatory Problems and Bullying

Dieter Wolke PhD Dr rer nat h.c.
Overview or the “Freakonomics” of Common Problems

- **Prematurity** – Long term effects and changing Demography

- **Infant Regulatory Problems:** Crying, Sleeping and Feeding

- **Bullying:** The long term impact of peer bullying

- Why it is important to do something about “normal” problems
Overlooked Long term Effects

1. Preterm Birth
   - Immaturity: Organ Development
   - Complications

Impact

Immediate
- Parents
- PTS

Longterm
- Preterm Phenotype
Social Class and IQ at 26 years of Age


doi: 10.1111/jcpp.12358
The Whole Gestation Range: Cognitive

Relationship of IQ and GA

Gestational age (w)
How the brain develops from 24 weeks gestation to term

40% less cortical folding than intrauterine

Kapellou et al.,(2006)
PLos Medicine,
2006, 3(8), e264
Building a different Brain

Correspondence Between Aberrant Intrinsic Network Connectivity and Gray-Matter Volume in the Ventral Brain of Preterm Born Adults

Josef G. Bäuml1,3,5, Marcel Daamen4,5,4, Chun Meng3,5, Julia Neitzel1,3, Lukas Scheef4, Julia Jaekel6,8, Barbara Busch5, Nicole Baumann9, Peter Bartmann9, Dieter Wolke6,7, Henning Boecker1, Afra M. Wohlschläger4,5, and Christian Sorg1,2,5

Figure 2. Aberrant gray matter in preterm born adults revealed by voxel-based morphometry overlaps with aberrant intrinsic functional connectivity in the ventral brain. (A) Based on structural MRI, differences in VBM were calculated by a two-sample t-test thresholded at P < 0.05, FWE-corrected for multiple comparisons, cluster extent > 20 voxels (blue: PT < FT; red: PT > FT). White numbers on top of each slice represent the x-coordinates in MN space (MN: Montreal Neurological Institute). (B) Overlapping VBM and fIC changes (see Fig. 1). Networks with overlapping fIC and VBM changes are the thalamus network, basal ganglia network, right ventral attention, and salience network II of Figure 1. Aberrant fIC is presented by blue (PT < FT) and red (PT > FT), aberrant VBM by yellow (FT < PT) clusters.
Psychiatric diagnosis: Childhood/ Adolescence

Figure 1. Prevalence of psychiatric disorders at 11 y of age in a whole population-based cohort of 219 EPT (<26 wk) children (blue columns) and 152 term-born classmates (red columns) in the UK EPICure Study.

ADHD diagnoses in Childhood and Adulthood

[Bar charts showing percentage of ADHD diagnoses by gender and birthweight (VP/VLBW) and term-birth. The bars are color-coded: predominantly ADD, predominantly HI, and combined type.]
Attention Problems/Skills across the Gestation Spectrum

1a. Parent-reported attention problems at 8 years

1b. Examiner-reported attention skills at 8 years

Gestational age in weeks

Estimated Mean Scores

Regression line  95% Confidence Intervals
Extremely preterm children were 6 times more likely to have ASD than classmates (OR 6.3, 95% CI 2.1 to 18.3).

Personality Profile of VP/VLBW

Estimated Marginal Means of MEASURE_1

VP/VLBW

- Introversion
- Reduced Risk Taking
- Autistic Features
- Neuroticism

Personality

e1

- .50
- .71

e2

- .17
- .42

e3

- .72
- .85

e4

- .31
- .56
How does VP/VLBW birth affect “real” life outcomes?

- Less Risk Taking and Crime
- Lower Wealth
- Poor Social Relationships
Wealth

Main contributing problems:

- Low income
- Unemployment
- No own home
- Basic/profession oriented education
- Relative poverty
- (Health) restrictions: occupation, economic self-sufficiency

Mean (z-scored) and 95% Confidence Interval

- Low income
- Unemployment
- No own home
- Basic/profession oriented education
- Relative poverty
- (Health) restrictions: occupation, economic self-sufficiency

*** *** ***
Social Functioning (subscales)
Parent, Partner and Peer Relationships

Main contributing problems:
- Less romantic/sexual relationships
- No best friend/confidante
- Problems making/keeping friends
- Contact & support of friends
- Being bullied
- Less social activities
Perinatal Complications and Ageing

![Bar charts showing the relationship between perinatal complications and telomere length and perceived age.](image)

**A**
- Telomere Length (T/S Ratio) at 38 Years: Lengther
- Perinatal Complications: None, 1, ≥2

**B**
- Perceived Age (Z Score) at 38 Years: Older
- Perinatal Complications: None, 1, ≥2

**Image Source:**

**Warwick Logo:**
- Warwick University

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**Module PS 353 Developmental Psychopathology**

28.2.2008
Conclusions and Implications

- VP/VLBW have a characteristics phenotype relating to cognitive problems, personality, attention, mental health, risk taking and social relationships

Follow-up Care

Doyle et al. BMC Pediatrics 2014, 14:279
http://www.biomedcentral.com/1471-2431/14/279

COMMENTARY

Long term follow up of high risk children: who, why and how?

European Minimal Standards of Care and Follow-up

Editorial board

### Pre-conceptional and maternal care

<table>
<thead>
<tr>
<th>Name</th>
<th>Institution</th>
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<tbody>
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<td>Jacobsson, Bo MD PhD</td>
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<td>Vetter, Klaus MD</td>
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### Neonatal care

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<td>Hellström-Westas, Lena MD PhD</td>
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<td>University of Uppsala</td>
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### Aftercare services and follow-up

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<td>Institute for Women's Health, UCL</td>
<td>London, United Kingdom</td>
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<td>Wolke, Dieter PhD</td>
<td>Department of Psychology and Division of Mental Health and Wellbeing</td>
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<td>Wolke, Dieter PhD</td>
<td>The University of Warwick</td>
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<td>Wolke, Dieter PhD</td>
<td>Coventry, United Kingdom</td>
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Implications

Education
- Delayed school entry?
- Teaching the teachers about prematurity
- Instruction methods

Ageing and Social Care

Mental Health Services
- into adulthood (e.g. Adult ADHD, anxiety, psychotic symptoms, social integration)
Changes in Demography and Reproductive Medicine: Prematurity rates are rising!

Average age to give birth in Europe, 2011 30.1 years

Last 20 years

- increase of preterm birth 2%: 2000 more cases of any SEN/yr

- increase in near term births 6.2%: 1200 cases more of any SEN/yr

REFERENCES
Chapter 1. Preterm birth matters

Chapter 2. 15 million preterm births: priorities for action based on national, regional and global estimates
Overlooked Long term Effects

2. Regulatory Problems in Infancy
   - Persistent Crying
   - Sleep Problems
   - Feeding Problems

Impact

Immediate
- Depression
- Parenting
- SBS
- FTT

Longterm
- Behaviour Problems
- Cognition
CRYING
Overall colic percentages combined across studies

Wolke, D, Samara, M & Alvarez Wolke, M (in preparation)
Shaken Baby Syndrome

- Weak Neck Muscles
- Normal Large Head to Body ratio
- *Violent, sustained* shaking
Sleeping: Principles

- Babies are not born with the ability to sleep through the night
Sleeping: Principles

- All babies wake up at night
Feeding & Eating Problems
Human infant depends completely on social relationship for intake of nutritional requirements

The prerequisites for successful feeding are:

- Anatomical maturation of the nervous system and muscular structures
- The development of appropriate oral motor skills
- Appropriate positioning and body posture during feeding
- Appropriate parent-child interaction

(see Wolke et al., 2006; Reilly et al., 2006)
- VIDEO  Food Refusal
Core Concept: reduced inhibition/self-regulation

- **Crying**: cannot stop crying
- **Sleeping**: cannot fall asleep alone or fall back to sleep when awoken
- **Feeding**: cannot overcome neophobia

- **Can** have differences in Reactivity
- **Must** have differences in Regulation
Meta-analysis of 22 Studies of Crying, Sleeping and Feeding Problems and Later Behaviour Problems

<table>
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<tr>
<th>Associations</th>
<th>K</th>
<th>ES</th>
<th>SE</th>
<th>Variance</th>
<th>95% Confidence Interval</th>
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<tr>
<td>Any Regulatory Problem</td>
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<td></td>
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<td></td>
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<tr>
<td>General BP</td>
<td>22</td>
<td>0.412</td>
<td>0.067</td>
<td>0.004</td>
<td>0.281 - 0.544</td>
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<tr>
<td>Externalizing</td>
<td>15</td>
<td>0.507</td>
<td>0.097</td>
<td>0.009</td>
<td>0.318 - 0.697</td>
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<tr>
<td>Internalizing</td>
<td>11</td>
<td>0.342</td>
<td>0.073</td>
<td>0.005</td>
<td>0.200 - 0.484</td>
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<tr>
<td>ADHD</td>
<td>13</td>
<td>0.363</td>
<td>0.119</td>
<td>0.014</td>
<td>0.130 - 0.596</td>
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Conclusions and Implications

- Infant regulatory problems have long term cascading effects on mental health

- There are prevention strategies: dealing with crying, sleep training, managing feeding - Why not in antenatal classes?

- Primary care providers are insufficiently trained to provide preventative actions – behavioural management techniques – infant clinics, parent support

  *Excessive Infant Crying: A Controlled Study of Mothers Helping Mothers*
  Dieter Wolke, Pat Gray and Renate Meyer
  *Pediatrics* 1994;94;322-332

- Infant regulatory problems are frequent, expensive (repeat physician visits) and in the long term costly for mental health services.
**Bullying** is defined as

1. **aggressive behaviour or** **intentional** harm-doing by an individual or group that
2. is carried out **repeatedly** over time in
3. an interpersonal relationship characterized by an **imbalance of power**
Types of bullying

• Direct/Overt
  - Name calling, teasing, racial slurs
  - Obscene gestures
  - Hitting, kicking, pushing
  - Threatening, stealing

• Relational
  - Leaving out on purpose
  - Spreading nasty rumours
  - Purposeful damage to social relationships
Perpetrator Type and Victimization: NSPCC- Study

![Graph showing the percentage of children experiencing different types of victimization by age.](image)

Fig. 1. Past year rates of child victimization by perpetrator type and selected victimization types, ages 10–17 years (weighted data).
Prevalence of Bullying Victimisation in Europe

Being Bullied: will Kids grow out of it? -
- Adolescence and Adulthood -
Schoolboy ‘hanged himself after bullying’

Council investigates claims that death followed intimidation

Laura’s heart was broken when she found her 13-year-old son, Kyle, had hanged himself in the garage of their home in Newham, East London, last week. The teenager, who was suffering from depression, had been bullied at school for years and was said to be worried about moving to a new school in September. The family’s solicitor, David Ben-Hagin, said: “We just couldn’t take any more.”

Bullied boy, 11, dies after pills overdose

Modern bullies are seeking victims through cyberspace

Boy ‘beaten up’ in lesson on bullying

Boy killed by train ‘as he fled bullies’

Overdose girl, 13, was ‘terrified of bullies’

By Nicola Woolcock

A 13-YEAR-OLD girl who died in a suspected suicide pact was the victim of school bullies, her parents said.

Police had ruled out bullying as the cause of Laura Rhodes’s death, but her family said that she was terrified of daily taunts about her weight. The teenager died on Saturday after apparently taking an overdose of painkillers with her friend Rebecca Ling, 14, who is recovering in hospital.

Overdose girl, 13, was ‘terrified of bullies’
Being Bullied <11 yrs & Self-harm at 17 yrs

- Self-harm → defined as when somebody intentionally damages or injures their body

- Typical self-harm behaviour → cutting, burning or swallowing pills

Self Harm 16.5%

213; 27%

579; 73%
Being bullied during childhood and the prospective pathways to self-harm in late adolescence

Suzet Tanya Lereya, Ph.D., Catherine Winsper, Ph.D., Jon Heron, Ph.D., Glyn Lewis, Ph.D.,
David Gunnell, M.D., Helen L. Fisher, Ph.D., Dieter Wolke, Ph.D.

Journal of the American Academy of Child & Adolescent Psychiatry
Volume 52 Number 6 June 2013

- Being bullied directly increased the risk of self-harm (Population attributable Fraction (PAF) > 20%)

- It means: if bullying could be eliminated (and everything else stays the same) 20% of self-harm cases could be prevented!

- Compare this to obesity (BMI > 30) - it occurs in 15% of the population - but accounts for only 2.8% of all myocardial infarctions

Peer victimisation at 12 years and Anxiety Disorders at 18 years

Chronicity of Victimisation (Child Report) & Psychotic Experiences at 18 years

Model B: Adjusted for Sex, any DSM-IV diagnosis, IQ, internalizing/externalizing behaviour
Model C: Adjusted for Sex, any DSM-IV diagnosis, IQ, internalizing/externalizing behaviour, depression symptoms at 12, 13 or 14 years and psychotic experiences at 12 years

Adult Psychiatric Outcomes of Bullying and Being Bullied by Peers in Childhood and Adolescence

William E. Copeland, PhD; Dieter Wolke, PhD; Adrian Angold, MRC; E. Jane Costello, PhD
Published online February 20, 2013.

Impact of Bullying in Childhood on Adult Health, Wealth, Crime, and Social Outcomes

Dieter Wolke¹, William E. Copeland², Adrian Angold², and E. Jane Costello²
¹Department of Psychology and Division of Mental Health and Wellbeing, University of Warwick, and ²Department of Psychiatry and Behavioral Sciences, Duke University Medical Center

William Copeland
Jane Costello
Adrian Angold
Bullying involvement at 9-16 years and early adult psychiatric outcome (controlled for childhood psychiatric problems and family factors)

Depressive Disorders

Anxiety Disorders
Mental Health Consequences of Maltreatment &/or Being Bullied: Two Cohorts in Two Countries

**Odds Ratios**

- Maltreatment only
- Being bullied only
- Both

ALSPAC GSMS

![Graph showing odds ratios for mental health consequences of maltreatment and bullying in ALSPAC and GSMS.](image-url)
Being Bullied at Ages 7 & 11 and Psychiatric Outcomes at Age 45

Takizawa, R., Maughan, B., & Arseneault, L. (2014). Adult Health Outcomes of Childhood Bullying Victimization: Evidence From a Five-Decade Longitudinal British Birth Cohort. AJP. 18 April online
Bullying gets under the skin: Roles in Bullying and chronic low grade inflammation (c-reactive protein levels changes in blood)

In Childhood

From Child to Adulthood

Summary of Adverse Outcomes of Bullying

**Health**
- Increased risk for:
  - Psychotic experiences;
  - Anxiety;
  - Depression;
  - Suicidality and Self-harm;
  - Sleep problems such as nightmares, night-terrors

**Health**
- Psychiatric & serious illness;
- Smoking;
- Slow recovery;
- Elevated CRP levels
- Suicidality
- Anxiety

**Wealth**
- Poor school performance,
- Less income;
- Dismissed from jobs;
- Poor in managing finances

**Social**
- Poor relationship with parents;
- Few friends;
- No confidante

Victimisation → School → Teen → Adult
Implications

If we want to improve the Health and Wealth of the Nation – we need to address bullying

Doubters: but so many children are affected – it is just normal…..

Answer: Just because it is frequent it does not mean it does not matter!

Example: Most people break a bone in their life – it is normal – do we leave them with hanging arms or stumps of legs – we treat them – we assess, set and provide them with a cast.
The long-term cost of bullying

Being bullied as a child is a cause of long-lasting and significant damage. Victims of childhood bullying are at increased risk of poorer health, wealth the bullying problem. It is a public health and community problem that requires parents, GPs, other community agencies and schools to work together.

Worked with All Party Parliamentary Group on bullying:

Definition of Bullying in the new Family and Child Bill – Depression as a special Need
Overprotective Parents Can Make a Kid a Target of Bullies

By Charlene Laino, Senior Writer, Gupta Guide
Published: April 25, 2013
Reviewed by Zalman S. Agus, MD, Emeritus Professor, Perelman School of Medicine at the University of Pennsylvania and Dorothy Caputo, MA, BSN, RN, Nurse Planner

Overprotected children 'more likely to be bullied'

By Hannah Richardson
BBC News education reporter

Children who have overprotective parents are more likely to be bullied by their peers, research suggests.

"Children who have overprotective parents are more likely to be bullied by their peers," BBC News explains.

The news correctly presents the findings of a major study on the effects of parenting on a child’s risk of being bullied, but it focuses on the weakest finding of the research.

The study did suggest that overprotective parents may increase a child’s risk of being bullied.
Aggression Between Siblings: Associations With the Home Environment and Peer Bullying

Neil Tippett* and Dieter Wolke

Department of Psychology, University of Warwick, Coventry, UK


Bullied by siblings: association with peer victimisation and behaviour problems in Israeli lower secondary school children

Dieter Wolke, and Muthanna M. Samara

University of Bristol, Division of Child Health, ALSPAC, UK

Sibling Bullying and Risk of Depression, Anxiety, and Self-Harm: A Prospective Cohort Study

Lucy Bowes, PhD; Dieter Wolke, PhD; Carol Joinson, PhD; Suzet Tanya Leroya, PhD; and Glyn Lewis, PhD

WHAT’S KNOWN ON THIS SUBJECT: Recent reviews suggest that children bullied by siblings are at increased risk of internalizing symptoms. It is not known whether being bullied by a sibling increases risk of psychiatric disorders such as depression, anxiety, and self-harm.

WHAT THIS STUDY ADDS: Using a large, community-based birth cohort, we found that being bullied by a sibling is prospectively associated with a doubling in the odds of both depression and self-harm at 18 years in young adults.

Pediatrics, September, 8, 2014
Common Problems with Serious Mental Health and “Real” Life Consequences

1. Preterm Birth
   - Freakonomics
     - Increasing numbers unnoticed by mental health provisions
   - Immediate
     - Depression
     - Parenting
     - SBS
     - FTT
   - Longterm
     - Behaviour Problems
     - Cognition
   - Longterm
     - Parents
     - PTS
     - Preterm Phenotype
     - Psychological Sequelae
     - Health

2. Regulatory Problems in Infancy
   - Ignored – normal – some do grow out of it
   - High Prevalence

3. Peer and Sibling Relationships
   - It starts at home
   - Need a community approach
   - Ignored by Health Professionals
   - Impact
Thanks for listening

D.Wolke@warwick.ac.uk