THE IMPACT OF PERINATAL DEPRESSION ON CHILDREN’S SOCIAL-EMOTIONAL DEVELOPMENT: A NORWEGIAN LONGITUDINAL STUDY

Carolin Junge, MPH a,b
Susan Garthus-Niegel, PhD a,b
Kari Slinning, PhD c,d
Tone Breines Simonsen, MSc e
Malin Eberhard-Gran, MD, PhD b,f,g

a Institute and Policlinic of Occupational and Social Medicine, TU Dresden, Faculty of Medicine, Dresden, Germany; b Department of Psychosomatics and Health Behavior, Norwegian Institute of Public Health, Oslo, Norway; c Department of psychology, University of Oslo, Norway; d National network for the infant mental health at the Region Centre for Child and Adolescent Mental Health, Eastern and Southern Norway; e Department of Obstetrics and Gynecology, Akershus University Hospital, Lørenskog, Norway; f Health Services Research Centre, Akershus University Hospital, Lørenskog, Norway; g Institute of Clinical Medicine, Campus Ahus, University of Oslo, Lørenskog, Norway
“My Husband wants another baby. The idea is quite nice, but really frightens me to think that after having the baby I would be like this again. I wouldn’t mind the morning sickness or the actual birth. It is the postnatal depression that really frightens me. I don’t think that I could face that again. It was horrific.”

[Quotation from a mother (Jeni Holden 1988) Quevedo et al., 2012]
BACKGROUND

• The perinatal period represents a vulnerable time for pregnant women that can be dominated by feelings of insecurity, doubt, distress or depression. [1,2]

• **Prevalence perinatal depression:** 10-15% [3–6]

• Perinatal depression is considered to have a negative impact on child health and child development [1,2,7]

  ➢ **Evidence:** Slow foetal growth, preterm birth, difficult temperament, sleeping and anxiety disorders and behavioural problems in school [5,8, 9]

? Impact of social-emotional development in preschool children?
? Effect size?
? Importance of timing?
OBJECTIVE

This longitudinal population study aimed to investigate how perinatal maternal depression impacts children’s social-emotional development at 2 years of age.

Current maternal depression
Lifestyle (social support, alcohol consumption)
Child factors (sex, health, preterm birth)
Socio-demographic factors

Perinatal depression

Social-emotional development

http://short4u.de/55e9c4bcd6651:
METHODS

Data basis: Akershus Birth Cohort Study (Oslo)

- Recruitment: Sept. 2008 - Sept. 2010
- Self-administered questionnaires

Base population: Q2, Q3 and Q4
## PSYCHOMETRIC SCALES, VARIABLES AND CONFOUNDER

<table>
<thead>
<tr>
<th>Socio-demographic factors</th>
<th>Age</th>
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<tbody>
<tr>
<td></td>
<td>Parity</td>
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<tr>
<td></td>
<td>Education</td>
</tr>
<tr>
<td></td>
<td>Marital status</td>
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<td>Social support</td>
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<thead>
<tr>
<th>Somatic factors of the mother</th>
<th>Alcohol consumption during pregnancy</th>
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<tr>
<th>Child factors</th>
<th>Sex</th>
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<tr>
<td></td>
<td>Preterm birth</td>
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<td>Current health</td>
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STATISTICAL ANALYSIS

• Descriptive analysis of absolute and relative frequencies

• Missing imputation: mean of each case if the number of missings was ≤ 20 % (EPDS) and ≤ 10 % (for ASQ:SE)

• Bi- and multivariate logistic regression with a categorical variable for pre- and postnatal depression:
  o No depression
  o Depression at pregnancy week 32 but not at 8 weeks postpartum
  o No depression at pregnancy week 32 but at 8 weeks postpartum
  o Depression at both time points

➢ All descriptive and logistic analyses were performed with IBM SPSS Statistics 20, Significance level $p < 0.05$
RESULTS

- Women who attended routine ultrasound screening: n = 6,244
- Women invited to the study: n = 4,814
  - A: Women included in the cohort: n = 4,662
  - B: Returned Q1, pregnancy week 17: n = 3,752 (80% of A)
  - C: Returned Q2, pregnancy week 32: n = 2,936 (78% of B, 63% of A)
  - D: Returned Q3, 8 weeks after delivery: n = 2,172 (76% of C, 48% of A)
  - E: Returned Q4, 2 years after delivery: n = 1,294* (60% of D, 28% of A)

*Actually n = 1,296 (28% of A) due to 2 women who did not fill out Q1 but Q2, Q3 and Q4

<table>
<thead>
<tr>
<th>Maternal depression</th>
<th>Mean EPDS score (SD)</th>
<th>% with EPDS ≥10 (n)</th>
<th>Total No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>32nd gestational week</td>
<td>4.8 (4.0)</td>
<td>12.4 (161)</td>
<td>1294</td>
</tr>
<tr>
<td>8 weeks postpartum</td>
<td>4.5 (4.2)</td>
<td>12.4 (160)</td>
<td>1292</td>
</tr>
<tr>
<td>2 years postpartum</td>
<td>4.1 (4.3)</td>
<td>10.7 (138)</td>
<td>1288</td>
</tr>
</tbody>
</table>
## PERINATAL DEPRESSION AND CHILDREN’S SOCIAL-EMOTIONAL DEVELOPMENT

The following table presents the findings of the logistic regression analyses regarding the association between perinatal depression and children’s social-emotional problems, adjusted for various factors:

<table>
<thead>
<tr>
<th>Perinatal Dep.</th>
<th>Low score (≤50)</th>
<th>High score (&gt;50)</th>
<th>Total (100%)</th>
<th>Crude OR (95% CI)</th>
<th>Adjusted OR$^*$ (95% CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>No</td>
<td>1005 (97.7)</td>
<td>24 (2.3)</td>
<td>1029</td>
<td>1.0</td>
<td>1.0</td>
</tr>
<tr>
<td>Yes, at 32 gest. weeks</td>
<td>88 (89.8)</td>
<td>10 (10.2)</td>
<td>98</td>
<td>4.8 (2.2-10.3)$^{***}$</td>
<td>2.9 (1.1-7.2)$^*$</td>
</tr>
<tr>
<td>Yes, at 8 weeks postpartum</td>
<td>87 (88.8)</td>
<td>11 (11.2)</td>
<td>98</td>
<td>5.3 (2.5-11.2)$^{***}$</td>
<td>3.2 (1.4-7.6)$^*$</td>
</tr>
<tr>
<td>Yes, at both occasions</td>
<td>54 (87.1)</td>
<td>8 (12.9)</td>
<td>62</td>
<td>6.2 (2.7-14.5)$^{***}$</td>
<td>3.1 (1.1-8.7)$^*$</td>
</tr>
</tbody>
</table>

$^*$ Adjusted for current depression (2 years postpartum), education, social support, preterm birth, alcohol consumption during pregnancy, sex of the child and current child health

The following variables were also included in the logistic regression analyses, but not significantly associated with social-emotional problems in the child and therefore not included in the table: age, parity, maternal age, marital status and childbirth complications. *Statistically significant at 0.05 level, ** at 0.01 level, *** at 0.001 level. OR, odds ratio; CI, confidence interval.
DISCUSSION

Children of mothers who were depressed either prenatally or postnatally faced a risk increased by approximately three-fold of developing social-emotional problems.

**Independent risk:** Maternal prenatal or postpartum depression alone can cause developmental difficulties in children at two years of age.

Result aligns with a pattern found by previous longitudinal studies focusing on maternal perinatal depression and children’s risk for behavioural and emotional problems [12-16]

**Prenatal depression:**

➢ High cortisol level in prenatally depressed mothers transmitted to the foetuses which may cause those children to be more reactive to post-birth stress [2,3,7,17]

**Postpartum depression:**

➢ Quality of parent-child attachment and supportive behaviour from mothers moderates the effect of child development [17]

**Other mechanisms:**

➢ Range of genetic, biologic, social and environmental factors may be of importance to understand the association. [16]
STRENGTH AND LIMITATIONS

+ Large longitudinal cohort study
+ High response rate (80 %)
+ Validated instruments used to measure perinatal depression, children's social emotional development and socio-demographic, mental and somatic risk factors
+ Used objective data from the hospitals birth record

- Bias:
  I. Due to self-administered questionnaires
  II. Due to depressed mothers which might perceive their children to be more difficult than non-depressed mothers do [6,18,19]
CONCLUSION AND IMPLICATIONS

In this cohort study of 1,296 women, perinatal maternal depression increased the risk of social-emotional problems in children at the age of 2 years.

1. Identify parents and children at risk (Screening)
2. Clinicians, parents-to-be and particularly women themselves:
   - Should be made aware and more sensitive to perinatal depression
   - Need to be educated about the perils of unchecked depression during pregnancy
3. Pregnancy and parenting support should aim:
   - To enhance the health and development of children
   - Improve mothers’ perinatal mental health
   - Strengthen parent-child relations

[20] CAROLIN JUNGE
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TUSEN TAKK!
REFERENCES


9. Murray L, Cooper PJ. EDITORIAL: Postpartum depression and child development


16. Stein, Alan; Pearson, Rebecca M.; Goodman, Sherryl H.; Rapa, Elizabeth; Rahman, Atif; McCallum, Meaghan; Howard, Louise. Effects of perinatal mental disorders on the fetus and child. *The Lancet*. 2014;384(9956):1800-1819


