



West Middlesex University Hospital

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Date of Search: 28 Apr 2017

Sources Searched: Medline, Embase, PsycINFO

Effect of Maternal Mental Health Disorders on Offspring

[See full search strategy](#)

1. Maternal depression and family adversity: Linked pathways to offspring depression?

Author(s): Najman J.M.; Plotnikova M.; Williams G.M.; Alati R.; Mamun A.A.; Scott J.; Clavarino A.M.; Wray N.

Source: Journal of Psychiatric Research; May 2017; vol. 88 ; p. 97-104

Publication Date: May 2017

Publication Type(s): Article

Abstract: There is conflicting evidence about the contribution of maternal depression and family adversity to depression experienced by offspring. Because maternal depression and family adversity are related, there is a need to determine how they independently contribute to offspring depression. Data are from a long-running prospective birth cohort study (Mater-University of Queensland Study of Pregnancy and its outcomes - MUSP). For this study some 2200 offspring were followed up at 30 years of age. We first examine the association between maternal depression and family adversity over the period from the pregnancy to the child reaching adulthood. Then we consider the extent to which maternal depression and family adversity trajectories over this period predict CIDI/DSM-IV episodes of depression in the offspring of these mothers at 30 years of age. We find a strong bi-directional association between maternal depression and family experiences of adverse life events over the entire period the child is at home. After adjustment, children reared in a family experiencing high levels of adverse life events are more likely to experience a lifetime ever DSM-IV diagnosis of depression, are more likely to have experienced multiple episodes of lifetime ever depression, and are more likely to report their first episode of depression was at a younger age. The findings suggest the association between maternal depression and offspring depression appears to be partly attributable to the higher levels of family adversity characteristic of depressed mothers. Copyright © 2017 Elsevier Ltd

Database: EMBASE

2. Untreated depression during pregnancy: Short- and long-term effects in offspring. A systematic review

Author(s): Gentile S.

Source: Neuroscience; Feb 2017; vol. 342 ; p. 154-166

Publication Date: Feb 2017

Publication Type(s): Review

Abstract: Aim of this systematic review is to assess short- and long-lasting effects of antenatal exposure to untreated maternal depressive symptoms. Pertinent articles were identified through combined searches of Science.gov, Cochrane library, and PubMed databases (through August 2015). Forty-three, selected articles revealed that untreated gestational depression and even depressive symptoms during pregnancy may have untoward effects on the developing fetus (hyperactivity, irregular fetal heart rate), newborns (increased cortisol and norepinephrine levels, decreased dopamine levels, altered EEG patterns, reduced vagal tone, stress/depressive-like behaviors, and increased rates of premature deaths and neonatal intensive care unit admission), and children (increased salivary cortisol levels, internalizing and externalizing problems, and central adiposity). During adolescence, an independent association exists between maternal antenatal mood symptoms and a slight increase in criminal behaviors. In contrast, the relationship between gestational depression and increased risks of prematurity and low birth weight remains controversial. Given this background, when making clinical decisions, clinicians should weigh the growing evidences suggesting the detrimental and prolonged effects in offspring of untreated antenatal depression and depressive symptoms during pregnancy against the known and emerging concerns associated with in utero exposure to antidepressants. Copyright © 2015 IBRO

Database: EMBASE

3. Higher autism in children of women with psychiatric diagnoses

Author(s): Wieckowski, Bridget M.; Mukhtar, Yelda; Lee, John J.; Xing, Guibo; Walker, Cheryl K.

Source: Research in Autism Spectrum Disorders; Jan 2017; vol. 33 ; p. 10-20

Publication Date: Jan 2017

Publication Type(s): Journal Peer Reviewed Journal Journal Article

Abstract: Background: To determine the extent to which medical record history of maternal psychiatric diagnoses was associated with offspring autism risk in a large, socio-demographically diverse birth cohort. Method: This retrospective cohort study linked hospital discharge records for 8,951,763 California singleton births occurring 1/1/91-12/31/08 from the Office of Statewide Health Planning and Development with diagnostic and service records from the Department of Developmental Services. Medical records documenting maternal mood and anxiety disorders and schizophrenia ICD-9-CM codes were identified, and 42,423 children were categorized with a DSM-IV diagnosis of 'autistic disorder'. Log-linear Poisson models explored the relationships between maternal psychiatric disorders and autism, adjusting for maternal education, race, country of birth, and parental age. Results: Rates of maternal psychiatric diagnoses were lower than expected for the population, reflecting under-recognition and under-reporting by inpatient clinicians. In adjusted analyses, mothers diagnosed with one individual psychiatric condition were 1.2–2.8 times more likely to have a child who developed autism. Mothers diagnosed with any one or more psychiatric condition were twice as likely to have a child with autism compared with unaffected or unreported women (RR = 1.97; 95% CI 1.83–2.12). Conclusions: Women with a documented inpatient medical record history of psychiatric diagnosis were nearly twice as likely as women without such diagnoses to have a child later diagnosed with autism. These findings highlight the need for routine prenatal screening for psychiatric conditions, as well as enhanced neurobehavioral assessment of children

born to these mothers to detect early autism signs and optimize intervention timeliness. (PsycINFO Database Record (c) 2017 APA, all rights reserved) (Source: journal abstract)

Database: PsycINFO

4. Maternal depressive symptoms during and after pregnancy and psychiatric problems in children

Author(s): Lahti, Marius; Savolainen, Katri; Tuovinen, Soile; Pesonen, Anu-Katriina; Lahti, Jari; Heinonen, Kati; Hämäläinen, Esa; Laivuori, Hannele; Villa, Pia M.; Reynolds, Rebecca M.; Kajantie, Eero; Räikkönen, Katri

Source: Journal of the American Academy of Child & Adolescent Psychiatry; Jan 2017; vol. 56 (no. 1); p. 30-39

Publication Date: Jan 2017

Publication Type(s): Journal Peer Reviewed Journal Journal Article

Abstract:Objective: Maternal depressive symptoms during pregnancy are associated with increased risk of psychiatric problems in children. A more precise understanding of the timing of the symptoms during pregnancy and their independence of other prenatal and postnatal factors in predicting child psychopathology risk is needed. We examined whether maternal depressive symptoms during pregnancy predict child psychiatric problems, whether these associations are trimester- or gestational-week-specific and/or independent of pregnancy disorders, and whether maternal depressive symptoms after pregnancy mediate or add to the prenatal effects. Method: The study sample comprised 2,296 women and their children born in Finland between 2006-2010, participating in the prospective pregnancy cohort study Prediction and Prevention of Preeclampsia and Intrauterine Growth Restriction (PREDO) and followed up from 1.9 to 5.9 years of age. The women completed the Center for Epidemiologic Studies Depression Scale biweekly between gestational weeks+days 12+0/13+6 and 38+0/39+6 or delivery. In the follow-up, they completed the Beck Depression Inventory-II and Child Behavior Checklist 1½-5. Results: Maternal depressive symptoms during pregnancy predicted significantly higher internalizing (0.28 SD unit per SD unit increase [95% CI = 0.24-0.32]), externalizing (0.26 [0.23-0.30]), and total problems (0.31 [0.27-0.35]) in children. These associations were nonspecific to gestational week and hence pregnancy trimester, independent of pregnancy disorders, and independent of, although partially mediated by, maternal depressive symptoms after pregnancy. Psychiatric problems were greatest in children whose mothers reported clinically significant depressive symptoms across pregnancy trimesters and during and after pregnancy. Conclusion: Maternal depressive symptoms during pregnancy predict increased psychiatric problems in young children. Preventive interventions from early pregnancy onward may benefit offspring mental health. (PsycINFO Database Record (c) 2017 APA, all rights reserved) (Source: journal abstract)

Database: PsycINFO

5. Prenatal maternal depression is associated with offspring inflammation at 25 years: A prospective longitudinal cohort study

Author(s): Plant D.T.; Pawlby S.; Zunszain P.A.; Pariante C.M.; Sharp D.

Source: Translational Psychiatry; Nov 2016; vol. 6 (no. 11)

Publication Date: Nov 2016

Publication Type(s): Article

Available in full text at [Translational Psychiatry](#) - from ProQuest

Available in full text at [Translational Psychiatry](#) - from National Library of Medicine

Abstract:Animal studies and a handful of prospective human studies have demonstrated that young offspring exposed to maternal prenatal stress show abnormalities in immune parameters and hypothalamic-pituitary-adrenal (HPA) axis function. No study has examined the effect of maternal prenatal depression on offspring inflammation and HPA axis activity in adulthood, nor the putative role of child maltreatment in inducing these abnormalities. High-sensitivity C-reactive protein (hs-CRP) and awakening cortisol were measured at age 25 in 103 young-adult offspring of the South London Child Development Study (SLCDS), a prospective longitudinal birth cohort of mother-offspring dyads recruited in pregnancy in 1986. Maternal prenatal depression was assessed in pregnancy at 20 and 36 weeks; offspring child maltreatment (birth 17 years) was assessed at offspring ages 11, 16 and 25; and offspring adulthood depression (18-25 years) was assessed at age 25. Exposure to maternal prenatal depression predicted significantly elevated offspring hs-CRP at age 25 (odds ratio=11.8, 95% confidence interval (CI) (1.1, 127.0), $P=0.041$), independently of child maltreatment and adulthood depression, known risk factors for adulthood inflammation. In contrast, maternal prenatal depression did not predict changes in offspring adulthood cortisol; however, offspring exposure to child maltreatment did, and was associated with elevated awakening cortisol levels ($B=161.9$, 95% CI (45.4, 278.4), $P=0.007$). Fetal exposure to maternal depression during pregnancy has effects on immune function that persist for up to a quarter of a century after birth. Findings are consistent with the developmental origins of health and disease (DOHaD) hypothesis for the biological embedding of gestational psychosocial adversity into vulnerability for future physical and mental illness. Copyright © The Author(s) 2016.

Database: EMBASE

6. Prenatal depressive symptoms and toddler behavior problems: The role of maternal sensitivity and child sex

Author(s): Edwards, Renee C.; Hans, Sydney L.

Source: Child Psychiatry and Human Development; Oct 2016; vol. 47 (no. 5); p. 696-707

Publication Date: Oct 2016

Publication Type(s): Journal Peer Reviewed Journal Journal Article

Available in full text at [Child Psychiatry and Human Development](#) - from Springer Link Journals

Abstract:Increasing evidence suggests that maternal depression during pregnancy is associated with child behavioral outcomes even after accounting for later maternal depression. The purpose of this study was to examine various mechanisms, including maternal sensitivity, neonatal problems, and concurrent maternal depression, that might explain the association between prenatal maternal depressive symptoms and toddler behavior problems. Young, low income, African American mothers ($n = 196$) were interviewed during pregnancy and at 24-months postpartum, medical records were collected at the birth, and mother-child interactions were video-recorded at 24 months. Path analyses revealed that the association between prenatal depression and toddler behavior problems was mediated by maternal sensitivity and maternal depressive symptoms at 24 months. No evidence

was found for a mediating effect of neonatal problems. Path models examining sex differences suggested that different mediating factors may be important for boys and girls, with boys being particularly susceptible to the effects of maternal sensitivity. (PsycINFO Database Record (c) 2016 APA, all rights reserved) (Source: journal abstract)

Database: PsycINFO

7. Maternal stress during pregnancy and offspring depression

Author(s): Sourander, André

Source: Journal of the American Academy of Child & Adolescent Psychiatry; Aug 2016; vol. 55 (no. 8); p. 645-646

Publication Date: Aug 2016

Publication Type(s): Journal Peer Reviewed Journal Comment/Reply

Abstract:Comments on an article by M. Kingsbury et al. (see record 2016-37096-015). The article by Kingsbury et al offers new evidence from a 20-year follow-up study on how maternal stress during pregnancy affected depression in offspring. The study was based on the Avon Longitudinal Study of Parents and Children (ALSPAC) cohort, which has been charting the health of 14,500 families in southwest England since the 1990s and is one of the most important birth cohort studies to be carried out in child psychiatric epidemiology. The impressive design of the study by M. Kingsbury et al. makes an important contribution to our current understanding of prenatal psychosocial stress, fetal programming, and depression outcome. The findings reported by Kingsbury et al. were based on the hypothesis that fetal programming can help us to understand the etiology of depression. They focus on whether objective measurements that reflected the burden of stress were associated with adolescent depression after controlling for several confounders. (PsycINFO Database Record (c) 2016 APA, all rights reserved)

Database: PsycINFO

8. Stressful life events during pregnancy and offspring depression: Evidence from a prospective cohort study

Author(s): Kingsbury, Mila; Weeks, Murray; MacKinnon, Nathalie; Evans, Jonathan; Mahedy, Liam; Dykxhoorn, Jennifer; Colman, Ian

Source: Journal of the American Academy of Child & Adolescent Psychiatry; Aug 2016; vol. 55 (no. 8); p. 709-716

Publication Date: Aug 2016

Publication Type(s): Journal Peer Reviewed Journal Journal Article

Abstract:Objective: The fetal programming hypothesis posits that in utero exposure to stress can alter prenatal brain development and lifelong stress response. However, human studies linking objective prenatal stressors to offspring mental illness, especially depression, are rare. The purpose of this study was to examine the association between mothers' exposure to prenatal stressful life events (SLEs) and offspring depression. Method: The sample comprised 10,569 members of a prospective population-based cohort, the Avon Longitudinal Study of Parents and Children (ALSPAC). Mothers reported on the occurrence and impact of 42 prenatal SLEs. Offspring depressive symptoms were assessed using a computerized version of the Clinical Interview Schedule-Revised (CIS-R) at age 17 to 18, as well as 13 self-report statements from the Short Mood and Feelings Questionnaire (SMFQ) at 6 time points from ages 10 to 11 to 18 to 19. Latent class growth analysis (LCGA) was used to identify trajectories of depressive symptoms across adolescence. Results: After adjusting for potential confounders, a 1-unit increase in maternal SLE scores (range, 0–168) during gestation was

associated with increased offspring depressive symptoms ($\beta = 0.07$, $p < .01$) and major depression (odds ratio [OR] = 1.03, 95% CI 1.01, 1.06) at age 17 to 18. LCGA revealed 4 trajectories of depressive symptoms. High maternal SLEs (fourth quartile) were associated with membership in the trajectory characterized by stable, high levels of depression from age 10 to 11 to 18 to 19 years (OR = 1.72, 95% CI = 1.09, 2.71). Conclusion: These results provide support for the fetal programming hypothesis, demonstrating that prenatal exposure to acute stress is associated with offspring depression in adolescence. Stress management may be of benefit for expectant mothers. (PsycINFO Database Record (c) 2016 APA, all rights reserved) (Source: journal abstract)

Database: PsycINFO

9. Inflammation in placenta and blood during pregnancy-relation to depression in the mother and behavioral changes in the offspring?

Author(s): Brundin L.

Source: Biological Psychiatry; May 2016; vol. 79 (no. 9)

Publication Date: May 2016

Publication Type(s): Conference Abstract

Abstract:Background: Peri-partum depression affects around 20% of pregnant women. The enzymes in the kynurenine pathway are expressed by placenta and pivotal in the development of tolerance to the fetus. At the same time, the produced metabolites may be involved in the development of depression, if this enzymatic cascade is dysregulated. We have shown that neuroinflammation and the metabolite quinolinic acid (QUIN) are markedly increased in patients with suicidal depression. QUIN is an NMDA-receptor agonist, with enhancing effects on glutamate neurotransmission. We propose that the mechanisms of peri-partum depression could involve placental inflammation and increased release of kynurenine metabolites. Methods: 100 pregnant women are enrolled in first trimester and followed with psychiatric assessment and blood samples throughout pregnancy and the postpartum. The placenta is collected at birth. Cytokines and kynurenine metabolites are assessed in blood and placentas and examined for association with depressive and suicidal symptoms. A separate cohort of 75 women with severe and suicidal depression is studied in the postpartum. Cytokines are assessed with high-sensitivity electrochemiluminescence, and kynurenine metabolites by means of HPLC and GCMS. Results: Our pilot data show that blood inflammation and QUIN levels are elevated in women with depressive symptoms during pregnancy. Conclusions: Immunoregulatory changes in placenta are of critical importance for the maintenance of pregnancy. However, when dysregulated, inflammation in the placenta may lead to increased release of cytokines and kynurenine metabolites into the blood. This may lead to depressive symptoms in the mother, as well as neurodevelopmental changes in the fetus, which will be discussed in this presentation.

Database: EMBASE

10. Maternal perinatal mental health and offspring academic achievement at age 16: the mediating role of childhood executive function.

Author(s): Pearson, Rebecca M; Bornstein, Marc H; Cordero, Miguel; Scerif, Gaia; Mahedy, Liam; Evans, Jonathan; Abioye, Abu; Stein, Alan

Source: Journal of child psychology and psychiatry, and allied disciplines; Apr 2016; vol. 57 (no. 4); p. 491-501

Publication Date: Apr 2016

Publication Type(s): Research Support, Non-u.s. Gov't Research Support, N.i.h., Extramural Journal Article Observational Study

Available in full text at [Journal of Child Psychology and Psychiatry](#) - from John Wiley and Sons

Abstract:BACKGROUNDElucidating risk pathways for under-achieving at school can inform strategies to reduce the number of adolescents leaving school without passing grades in core subjects. Maternal depression can compromise the quality of parental care and is associated with multiple negative child outcomes. However, only a few small studies have investigated the association between perinatal maternal depression and poor academic achievement in adolescence. The pathways to explain the risks are also unclear.METHODProspective observational data from 5,801 parents and adolescents taking part in a large UK population cohort (Avon-Longitudinal-Study-of-Parents-and-Children) were used to test associations between maternal and paternal depression and anxiety in the perinatal period, executive function (EF) at age 8, and academic achievement at the end of compulsory school at age 16.RESULTSAdolescents of postnatally depressed mothers were 1.5 times (1.19, 1.94, $p = .001$) as likely as adolescents of nondepressed mothers to fail to achieve a 'pass' grade in math; antenatal anxiety was also an independent predictor of poor math. Disruption in different components of EF explained small but significant proportions of these associations: attentional control explained 16% (4%, 27%, $p < .001$) of the association with postnatal depression, and working memory explained 17% (13%, 30%, $p = .003$) of the association with antenatal anxiety. A similar pattern was seen for language grades, but associations were confounded by maternal education. There was no evidence that paternal factors were independently associated with impaired child EF or adolescent exams.CONCLUSIONMaternal postnatal depression and antenatal anxiety are risk factors for adolescents underachieving in math. Preventing, identifying, and treating maternal mental health in the perinatal period could, therefore, potentially increase adolescents' academic achievement. Different aspects of EF partially mediated these associations. Further work is needed, but if these pathways are causal, improving EF could reduce underachievement in math.

Database: Medline

11. Parental mood during pregnancy and post-natally is associated with offspring risk of Tourette syndrome or chronic tics: prospective data from the Avon Longitudinal Study of Parents and Children (ALSPAC)

Author(s): Ben-Shlomo Y.; Miller L.L.; Scharf J.M.; Mathews C.A.

Source: European Child and Adolescent Psychiatry; Apr 2016; vol. 25 (no. 4); p. 373-381

Publication Date: Apr 2016

Publication Type(s): Article

Available in full text at [European Child & Adolescent Psychiatry](#) - from EBSCOhost

Available in full text at [European Child and Adolescent Psychiatry](#) - from ProQuest

Available in full text at [European Child and Adolescent Psychiatry](#) - from Springer Link Journals

Abstract: Little is known about risk factors for Tourette syndrome (TS) and chronic tic disorders (CT) but maternal psychological morbidity in pregnancy may be associated with TS/CT. We examined whether pre- and post-natal parental anxiety and/or depression are associated with risk of TS/CT in the Avon Longitudinal Study of Parents and Children. We compared self-reported anxiety and depression measures collected prospectively at four time points (18 and 32 weeks prenatally, and 8 weeks and 8 months post-natally) among parents of children who subsequently met criteria for TS/CT at 13 years of age as compared to other children from the cohort. We adjusted for various socioeconomic measures and tested both for time period-specific exposure and chronic exposure using multivariable logistic regression models. 122 children had TS/CT (50 TS, 72 CT) and 5968 children had no tics. In crude analyses, both pre- and post-natal maternal anxiety and depression, but only post-natal paternal depression at 8 months, showed associations with TS/CT. In the final, adjusted multivariable models, chronic maternal anxiety (odds ratio 2.17, 95 % CI 1.23, 3.84, $p = 0.007$) and pre-natal maternal depression (odds ratio 1.86, 95 % CI 1.02, 3.39, $p = 0.04$) showed associations with TS/CT though the latter was consistent with chance ($p = 0.07$) after adjustment for past maternal depression. We find associations between maternal psychological morbidity pre- and post-natally and risk of future TS/CT in offspring. These associations may reflect either shared genetic susceptibility or a pre-natal exposure. Further work is required to see if these findings can be replicated in larger datasets. Copyright © 2015, The Author(s).

Database: EMBASE

12. Fetal exposure to maternal stress and risk for schizophrenia spectrum disorders among offspring: Differential influences of fetal sex.

Author(s): Fineberg, Anna M; Ellman, Lauren M; Schaefer, Catherine A; Maxwell, Seth D; Shen, Ling; H Chaudhury, Nashid; Cook, Aundrea L; Bresnahan, Michaeline A; Susser, Ezra S; Brown, Alan S

Source: Psychiatry research; Feb 2016; vol. 236 ; p. 91-97

Publication Date: Feb 2016

Publication Type(s): Research Support, N.i.h., Extramural Journal Article

Abstract: Exposure to adverse life events during pregnancy has been linked to increased risk of schizophrenia spectrum disorders (SSD) in offspring. Nevertheless, much of the previous work inferred maternal stress from severe life events rather than directly assessing maternal reports of stress. The present study aimed to examine maternal reports of stress during pregnancy and risk for offspring SSD. Participants were 95 SSD cases and 206 controls who were offspring from a large birth cohort study that followed pregnant women from 1959 to 1966. During pregnancy interviews, women were asked if anything worrisome had occurred recently. Interviews were qualitatively coded for stress-related themes, including reports of daily life stress, by two independent raters. None of the maternal psychosocial stress themes were significantly associated with increased odds

of offspring SSD in analyses of the full sample. However, results indicated a significant daily life stress by infant sex interaction. Maternal daily life stress during pregnancy was associated with significantly increased odds of SSD among male offspring. Findings suggest sex-specific fetal sensitivity to maternal reported daily life stress during pregnancy on risk for SSD, with males appearing to be more vulnerable to the influences of maternal stress during pregnancy.

Database: Medline

13. Maternal Psychiatric Disorder and the Risk of Autism Spectrum Disorder or Intellectual Disability in Subsequent Offspring.

Author(s): Fairthorne, Jenny; Hammond, Geoff; Bourke, Jenny; de Klerk, Nick; Leonard, Helen

Source: Journal of autism and developmental disorders; Feb 2016; vol. 46 (no. 2); p. 523-533

Publication Date: Feb 2016

Publication Type(s): Research Support, Non-u.s. Gov't Journal Article

Available in full text at [Journal of Autism and Developmental Disorders](#) - from Springer Link Journals

Available in full text at [Journal of Autism & Developmental Disorders](#) - from EBSCOhost

Available in full text at [Journal of Autism and Developmental Disorders](#) - from ProQuest

Abstract:Psychiatric disorders are more common in the mothers of children with autism spectrum disorder (ASD) or intellectual disability (ID) after the birth of their child. We aimed to assess the relationship between women's psychiatric contacts and subsequent offspring with ASD/ID. We linked three Western Australian registers to investigate pre-existing maternal outpatient psychiatric contacts and the odds of ASD/ID in a subsequent child. Women with a previous outpatient psychiatric contact were more than twice as likely to have a child with ASD [OR 2.07 (95 % CI 1.7, 2.6)] or ID [OR 2.31 (2.1, 2.6)]. Further research exploring the effect on pregnancy outcomes of medications prescribed to women with psychiatric disorders is implicated.

Database: Medline

14. Additive effects of maternal depressive symptoms during pregnancy and three years after childbirth on offspring psychiatric symptoms in early childhood

Author(s): Lahti M.; Tuovinen S.; Pesonen A.-K.; Savolainen K.; Heinonen K.; Lahti J.; Raikkonen K.; Reynolds R.; Kajantie E.; Laivuori H.; Hamalainen E.; Villa P.

Source: Psychoneuroendocrinology; Nov 2015; vol. 61 ; p. 12

Publication Date: Nov 2015

Publication Type(s): Conference Abstract

Abstract:Maternal prenatal depressive symptoms are associated with an increased risk of child psychiatric symptoms. However, it remains uncertain whether this association is independent of maternal depressive symptoms measured concurrently to child ratings, and whether mother's prenatal and concurrent depressive symptoms add to each other in increasing the child's psychiatric symptoms risk even further. We examined these questions among 2296 mother-child dyads (50.6% boys) participating in the Prediction and Prevention of Pre-Eclampsia (PREDO) study. Biweekly ratings of maternal prenatal depressive symptoms were obtained from 12 0/7/ to 13 6/7 weeks of gestation onwards up to 14 times across pregnancy with the Center for Epidemiological Studies Depression Scale. When the children were on average 3.5 years old (range 1-5 years), the mothers rated child psychiatric symptoms with the Child Behaviour Checklist and their own concurrent depressive symptoms with Beck Depression Inventory-II. For each standard deviation unit higher mean maternal prenatal depressive symptoms, child internalizing, externalizing and total psychiatric

problems increased by 0.18 (95% Confidence Interval (CI) = 0.13-0.22), 0.16 (95% CI = 0.12-0.20), and 0.20 (95% CI = 0.15-0.24) standard deviation units. Comparable effects were found for maternal depressive symptoms during each pregnancy trimester. All the effects were independent of concurrent maternal depressive symptoms and sociodemographic and prenatal covariates. Moreover, child psychiatric symptoms were highest if the mothers reported high depressive symptoms both prenatally and concurrently when assessing the child. To conclude, while maternal prenatal depressive symptoms increase the risk of offspring psychiatric symptoms in early childhood independently of mother's concurrent depressive symptoms, these concurrent symptoms add to the prenatal adversity effects.

Database: EMBASE

15. Does maternal antenatal depression alter infant hypothalamic-pituitary-adrenal (HPA) axis functioning in the offspring at 4 months postpartum?

Author(s): Capron L.; Glover V.; Ramchandani P.

Source: Psychoneuroendocrinology; Nov 2015; vol. 61 ; p. 33

Publication Date: Nov 2015

Publication Type(s): Conference Abstract

Abstract:Objective: Antenatal depression is associated with an increased risk of adverse fetal and infant development. It is possible that these effects are mediated in part via altered fetal HPA-axis functioning. Infant HPA-axis functioning can be assessed through salivary cortisol. This study aims to further characterise this association. Methods: Pregnant women were recruited prior to elective caesarean and assessed for depression using the Edinburgh Postnatal Depression Scale (EPDS). At 4 months post-partum mothers and their infants were invited to take part in an assessment session where a modified version of the Still Face Paradigm was used as a non-invasive stressor for the infant (n = 50). Saliva was collected at 3 time points during the session; prior (T1), immediately post (T2) and 20 min post stressor (T3). All samples were collected and stored within 2 hours of collection and analysed using Cortisol ELISAs (Salimetrics). Results: We observed no significant association between maternal antenatal depression and infant salivary cortisol levels at T1, T2 or T3 (all p's > 0.05). However, we observed a significant association between maternal antenatal depression and infant cortisol response to the stressor (T3-T2; $p < 0.01$, $R_s = 0.468$). This suggests that infants exposed to maternal antenatal depression have an increased response to the stressor compared to the non-exposed infants. Conclusions: These data suggest that fetal exposure to maternal depression may result in altered fetal development of the HPA axis, via fetal programming, with later consequences for infant stress regulation.

Database: EMBASE

16. High maternal distress scores in pregnancy are associated with development of offspring's atopic dermatitis

Author(s): Kwon J.-W.; Kim Y.-H.; Kim H.-B.; Yang S.-I.; Lee E.; Hong S.-J.; Kim H.Y.; Jung Y.-H.; Seo J.-H.; Kim B.-J.; Lee S.-Y.; Choi Y.K.; Do N.; Bae Y.J.

Source: Allergy: European Journal of Allergy and Clinical Immunology; Sep 2015; vol. 70 ; p. 210

Publication Date: Sep 2015

Publication Type(s): Conference Abstract

Available in full text at [Allergy](#) - from John Wiley and Sons

Abstract:Background: The development of allergic disease has been thought to the results of immunologic response to various genetic and environmental factors. Perinatal environments including maternal psychological distress might be related with development of allergic diseases. We evaluated the influences of maternal prenatal distress for the development of offspring's atopic dermatitis (AD). Method: A total of 2150 pregnant women were enrolled from general population between April 2008 and January 2009. Kessler scores for the probability of mother's distress were calculated at 1 month before and 6 month after delivery. Korean version of ISAAC (International Study of Asthma and Allergies in Childhood) questionnaire was obtained to evaluate the offspring's prevalence of allergic diseases at the age of 5. Logistic regression analyses were performed to analyze the association between prenatal maternal depression scores and the development of atopic dermatitis. Results: The prevalence (95% CI) of recent itchy eczema and physician diagnosed AD at 5 years old were 23.1% (21.0-25.3) and 25.9% (23.7-28.1). Children with current AD (having both physician diagnosed AD and recent eczema) was 14.1% (12.4-15.8). Offsprings from the mothers with high Kessler score (> 19) in 1 month before delivery were more likely to have a history of recent AD treatment (aOR 1.93, 95% CI 1.04-3.59) and current AD (aOR 1.72, 95% CI 0.94-3.13) at age 5. Persistent maternal distress (Kessler score > 19 at 1 month before and 6 months after delivery) was also associated with physician diagnosed AD (aOR 2.61, 95% CI 1.02-6.67) and current AD (aOR 2.52, 95% CI 0.94-6.74). Conclusion: Prenatal maternal distress might influence the development of offspring's AD. This finding suggests the possibility of AD prevention according to control of maternal depression in pregnancy.

Database: EMBASE

17. The effect of antidepressant treatment during pregnancy on social behaviour in the offspring

Author(s): Houwing D.J.; Staal L.; Olivier J.D.

Source: European Neuropsychopharmacology; Sep 2015; vol. 25

Publication Date: Sep 2015

Publication Type(s): Conference Abstract

Abstract:Introduction: Depressive symptoms frequently occur during pregnancy and may have a tremendous impact on the developing child. Unfortunately, pharmacological antidepressant treatments during pregnancy can negatively impact behavioral development and health of the offspring. We have recently found that antenatal depression and antidepressant exposure during pregnancy has an influence on the gene expression of the placenta [1]. About 20% of the altered genes in the placenta were overlapping between the antenatal depression and the antidepressant drug use during pregnancy groups [1]. It remains to be established how these differentially affected genes influence the development of the child, and whether these differences are found in the fetus as well. Serotonin is well known for its role in depression and autism. It has been shown that children from mothers which used selective serotonin reuptake inhibitors (commonly used antidepressant during pregnancy) have a higher risk for autism traits. In humans it is difficult to discern between the effects of the drug and the effects of the depression itself, therefore it is

unclear whether children exposed to antidepressants in utero are at increased risks. Therefore in this study we used rats with diminished serotonin transporter expression, combined with early life stress, as a model for antenatal depression. The purpose of this study is to elucidate the effects of antenatal depression, the effects of antidepressant treatment, and their combination on social behavior in mothers and their offspring. Methods used: Before treatment mothers were tested for their sociability in the three-chamber task. Thereafter mothers were bred and treated with fluoxetine (a selective serotonin reuptake inhibitor) or control treatment during pregnancy until rats were weaned. Mothers were tested again in the three-chamber task after the treatment period. The offspring was tested in several tests for social behavior, including social play, social interaction and the resident-intruder test. Summary of results: No differences were found in the social behavior of female rats with diminished serotonin transporter expression combined with early life stress and their controls. The experiments to assess the effects of antidepressant treatment on the sociability in the three-chamber task are still ongoing. Social behavior in the offspring is still being assessed. We did see an effect of fluoxetine treatment in the survival of the pups. Nearly 50% off the offspring exposed to fluoxetine during pregnancy and the postnatal period died, indicating that fluoxetine has an effect on the survival rate of the offspring. Conclusion: Although the social experiments are still ongoing, the results of this project will give us more insight in the effects of antenatal depression, of antidepressant treatment during pregnancy and their combination on the social behavior in the offspring. These results are of translational value as only depressed women use antidepressants during pregnancy. It is of importance investigate whether antidepressant may worsen the effects of antenatal depression on social behavior in the offspring, as many mothers use antidepressant during pregnancy and are struggling whether to continue treatment.

Database: EMBASE

18. Associations of maternal and paternal antenatal mood with offspring anxiety disorder at age 18 years

Author(s): Capron L.E.; Ramchandani P.G.; Glover V.; Pearson R.M.; Evans J.; O'Connor T.G.; Stein A.; Murphy S.E.

Source: Journal of Affective Disorders; Aug 2015; vol. 187 ; p. 20-26

Publication Date: Aug 2015

Publication Type(s): Article

Abstract: Objective Maternal antenatal depression and anxiety are associated with increased risk of childhood behavioural and emotional problems in offspring; it remains unclear to what extent this is due to a maternal biological impact on foetal development. Here, we compare associations between maternal and paternal antenatal depression and anxiety with offspring anxiety disorders, thus controlling for some genetic and shared environmental factors. Methods We used data from the ALSPAC population cohort including measures of antenatal parental depression and anxiety. At 18 years, offspring completed the CIS-R interview, yielding diagnoses for anxiety disorders. Results were adjusted for confounding variables including parental postnatal depression and anxiety. Results Children of women with antenatal depression (18 weeks gestation), had an increased risk of anxiety disorders at 18 years of age (11.1% vs. 6.2%; adj. OR 1.75 (1.19, 2.58); $p=0.01$). Children of women with antenatal anxiety had increased risk of co-morbid anxiety and depression (adj. OR 1.39 (1.06, 1.82); $p=0.02$). No such associations were found with paternal antenatal depression or anxiety. Limitations There was a high attrition rate from the original cohort to the CIS-R completion at 18 years postpartum. Parental mood was only assessed together at one time point during the antenatal period. Conclusions The differences in the association between maternal and paternal mood during pregnancy and child outcomes supports the hypothesis that foetal programming may account, at

least in part, for this association. We highlight the potential opportunity for preventative intervention by optimising antenatal mental health. Copyright © 2015 Published by Elsevier B.V.

Database: EMBASE

19. Examining the consequences of prenatal exposure to stress in the behavior of adult offspring

Author(s): Oderhowho A.; Tejada-Simon M.

Source: FASEB Journal; Apr 2015; vol. 29 (no. 1)

Publication Date: Apr 2015

Publication Type(s): Conference Abstract

Abstract: Stress has been associated to the development of cognitive and other behavioral deficits. Moreover, it is well established that stress, during, and after a pregnancy, has multiple quantifiable effects in the overall development of the offspring. Our lab is interested in studying the predisposition to psychosis on the offspring upon maternal induction of stress together with N-methyl-D-aspartate (NMDA) receptor hypofunction during pregnancy. Thus, our first step is determining psychotic-like phenotypes in a group subjected solely to stress during pregnancy. Towards this end, mice were randomly divided into 2 groups: control and stressed. Males and females were paired to induce pregnancy. Five days after confirmation of a vaginal plug; a stress induction procedure was randomly administered on the experimental group. This procedure was continued until birth, after which the pups were allowed to be nurtured for 21 days. Pups were subsequently tested for behavioral abnormalities related to cognition, anxiety, sensorimotor gating, etc. Our results indicate a significant increase in anxiety-related behaviors in both the pups and mothers of the experimental group. Incidence of depression was also significantly increased in the experimental group compared with the control. Taken together, our findings so far suggest that prenatal stress exposure significantly changes several facets of adult mice behavior. Interestingly, the behaviors that are altered have been used to validate animal models of schizophrenia, suggesting that this experimental protocol will be useful to compare with additional groups showing additional dysfunction of the NMDA receptor.

Database: EMBASE

20. Antenatal depression and antidepressants during pregnancy: Unraveling the complex interactions for the offspring

Author(s): Olivier J.D.A.; Akerud H.; Sundstrom Poromaa I.

Source: European Journal of Pharmacology; Apr 2015; vol. 753 ; p. 257-262

Publication Date: Apr 2015

Publication Type(s): Article

Abstract: During pregnancy the risk for a woman to develop a depressive episode is as high as 20%. Antenatal depression is not harmless for the developing child as several changes, including neurodevelopmental alterations, have been reported. Sometimes it is unavoidable to treat a pregnant mother with antidepressants, especially when she is suicidal. Currently, selective serotonin reuptake inhibitors (SSRIs) are the pharmacological choice of antidepressant treatment. SSRIs do not cause gross teratogenic alterations and are generally considered safe for use in pregnancy. However, although SSRIs may relieve the maternal symptoms, they definitively cross the placenta partially influencing the neurodevelopment of the fetus. In this review an overview is given of the effects on the offspring of maternal antenatal depression and the putative neurodevelopmental effects of SSRI treatment during pregnancy. Although we primarily focus on human data, some animal data are discussed to describe possible mechanisms on how SSRIs are affecting underlying biological

mechanisms associated with depression. In summary, maternal depression may have long-lasting effects on the offspring, whereas prenatal SSRI exposure also increases the risk for long-lasting effects. It remains to be determined whether the effects found after SSRI treatment in pregnant women are only due to the SSRI exposure or if the underlying depression is also contributing to these effects. The possibility of epigenetic alterations as one of the underlying mechanisms that is altered by SSRI exposure is discussed. However much more research in this area is needed to explain the exact role of epigenetic mechanisms in SSRI exposure during pregnancy. Copyright © 2014 Elsevier B.V.

Database: EMBASE

21. Depression and other severe mental disorders in the offspring of antenatally depressed mothers-the Northern Finland 1966 birth cohort

Author(s): Taka-Eilola T.; Mykkala S.; Kyllonen M.; Veijola J.; Maki P.

Source: Archives of Women's Mental Health; Apr 2015; vol. 18 (no. 2); p. 393

Publication Date: Apr 2015

Publication Type(s): Conference Abstract

Available in full text at [Archives of Women's Mental Health](#) - from Springer Link Journals

Available in full text at [Archives of Women's Mental Health](#) - from ProQuest

Abstract:Objective / Background Depression is common, also during pregnancy. There is lack of follow-up studies of the association between maternal depression during pregnancy and severe mental disorders in the offspring later on in adulthood. Our aim was to study severe depression and other hospital-treated mental disorders in the adult offspring of antenatally depressed mothers, when taking account parental mental disorder. Methods In the Northern Finland 1966 Birth Cohort, mothers of 12,058 children were asked at mid-gestation at the antenatal clinic if they felt depressed. The offspring were followed for over 40 years till 2008. Subsequent severe, hospital treated mental disorders in the offspring were detected using the Finnish Hospital Discharge Register, which was also used for identifying mental disorders in the parents till 1984, when the offspring were of age. Results Maternal depressed mood during pregnancy increased slightly the risk for depression (OR 1.6; 95 % CI 1.2-2.3) and affective disorders in general (1.6; 1.1-2.2) in the offspring. Maternal depressed mood during pregnancy combined with parental hospital-treated mental disorder increased the risk for mental disorders among the offspring widely: the risk was increased for depression (3.6; 2.0- 6.4), affective disorders in general (4.0; 2.4-6.8), schizophrenia (4.3; 2.3-8.2) and substance misuse (2.8; 1.7-4.7), when compared with the offspring without antenatally depressed mother and without parental hospital- treated mental disorder. These risks were also higher than in the offspring without maternal antenatal depression and with parental mental disorder. Conclusion / Discussion Maternal depressed mood during pregnancy increased the risk for depression in the offspring slightly when compared with the children of mothers without antenatal depression, but had a stronger effect on subjects at risk of severe mental disorder due to familial history. Antenatal depression may act as an adverse environmental factor in those with genetic vulnerability.

Database: EMBASE

22. Exposure to maternal prenatal depression predicts offspring depression at 25 years

Author(s): Plant D.; Pawlby S.; Pariante C.M.

Source: Archives of Women's Mental Health; Apr 2015; vol. 18 (no. 2); p. 388

Publication Date: Apr 2015

Publication Type(s): Conference Abstract

Available in full text at [Archives of Women's Mental Health](#) - from Springer Link Journals

Available in full text at [Archives of Women's Mental Health](#) - from ProQuest

Abstract:Objective / Background Studies have demonstrated the detrimental effects of exposure to maternal depression in utero on emotional psychopathology in childhood. Research has also demonstrated an association between exposure to prenatal maternal depression and offspring childhood maltreatment. We investigate the long-term effects of offspring exposure to prenatal maternal depression on depressive psychopathology in young adulthood, and whether exposure to childhood maltreatment contributes to this association. Methods The sample comprised 103 offspring from the South London Child Development Study (SLCDS). Data on offspring exposure to prenatal maternal depression (20 and 36 weeks gestation), childhood maltreatment (birth to 17 years) and early adulthood DSM-IV depressive disorders (18 to 25 years) were obtained through one-to-one clinical interviews. Results Offspring exposed to prenatal maternal depression were significantly more likely to have a DSM-IV depressive disorder in young adulthood (18 to 25 years) compared to offspring not so exposed. Exposed offspring were also 2.4 times, 95 % CI [1.0, 5.7], $p=.04$, more likely to experience childhood maltreatment. Path analysis revealed that offspring exposure to childhood maltreatment mediated the association between exposure to maternal depression in pregnancy and depression in adulthood, $B=.40$, 95 % CI [.03, 1.10]. Conclusion / Discussion Exposure to prenatal maternal depression results in persistent psychological changes in the offspring that are observable during young adulthood. Childhood maltreatment contributes to these pathologies. Clinical practice and health policy development should focus on the treatment of maternal depression in pregnancy as a means to preventing child maltreatment and reducing levels of depression in the adult population.

Database: EMBASE

23. Exposure to maternal perinatal depression: Offspring grown up

Author(s): Pawlby S.

Source: Archives of Women's Mental Health; Apr 2015; vol. 18 (no. 2); p. 388

Publication Date: Apr 2015

Publication Type(s): Conference Abstract

Available in full text at [Archives of Women's Mental Health](#) - from Springer Link Journals

Available in full text at [Archives of Women's Mental Health](#) - from ProQuest

Abstract:Longitudinal studies have consistently demonstrated an association between maternal depression in the perinatal period and the development of psychopathology in the exposed offspring. Several prospective studies that began in the 1980s and 1990s when the women were pregnant or had just given birth have come to fruition in that the offspring have now reached adulthood and each study has shown that exposure to perinatal depression increases the risk of becoming depressed in young adulthood. This symposium gathers together evidence from three such studies: the South London Child Development Study (SLCDS), recruited women from two community antenatal clinics in SE London in 1986; the Cambridge sample, a matched case/control design, recruited women who had recently delivered in 1986-8; the Avon Longitudinal Study of Pregnancy and Childbirth (ALSPAC), now of Parents and Children, recruited a cohort of pregnant

women delivering in the county of Avon in 1990. Dominic Plant and Cerith Waters both used the SLCDs participants in their doctoral studies. Dr Plant will show how exposure to maternal depression in pregnancy is a key vulnerability factor for depression in early adulthood, with effects that are independent from maternal depression after birth and that are mediated, at least in part, by an increased vulnerability of the offspring to experience childhood maltreatment. Dr Waters will show how early parenthood in one generation begets early parenthood in their offspring with girls being more vulnerable if they had emotional problems and boys if they had more behavioural problems in adolescence. Sarah Halligan will show how the presence of maternal depression can increase offspring biological sensitivity to social stress, which may in turn represent a possible mechanism by which risk for depression is transmitted from parents to their offspring. Finally, Rebecca Pearson also demonstrates that maternal perinatal depression is a risk factor for offspring adolescent depression. She found that there are independent associations between antenatal and postnatal depression and that the risk pathways are different. The risk associated with postnatal depression is moderated by disadvantage (low maternal education) but the risk associated with antenatal depression is not. All three studies show clearly how exposure to maternal depression in the antenatal and postnatal period predicts depression and biological sensitivity to stress in the offspring grown up. Moreover the offspring of young mothers in one generation beget offspring themselves at an early age. All the studies demonstrate intergenerational continuity.

Database: EMBASE

24. The development of offspring of postnatally depressed mothers: Evidence from the Cambridge longitudinal study and implications for intervention

Author(s): Murray L.

Source: Archives of Women's Mental Health; Apr 2015; vol. 18 (no. 2); p. 307

Publication Date: Apr 2015

Publication Type(s): Conference Abstract

Available in full text at [Archives of Women's Mental Health](#) - from Springer Link Journals

Available in full text at [Archives of Women's Mental Health](#) - from ProQuest

Abstract:Plenary Synopsis The Cambridge Longitudinal Study has investigated the development of 100 children of postnatally depressed and well mothers from a community sample from 2 months to 22 years. This paper will give an overview of the findings from the study, considering child development in three key areas: cognitive functioning, emotion-regulation and behaviour problems, and psychiatric outcome. As well as considering the role of risk factors such as further exposure to maternal depression and parental conflict, the paper will present the study's findings on the role of the mother-child relationship, including insecure attachment, and will assess the extent to which relationship difficulties associated with postnatal depression can account for adverse child outcome. In the second part of the presentation, the implications for treatment will be considered, and this will include interventions in a socio-economically deprived community in South Africa. A main conclusion arising from both the longitudinal study data, and interventions, is that it is helpful to consider the specificity of effects that is, that particular kinds of parenting problem are associated with particular kinds of poor child outcome, and, in turn, these indicate the need for specific types of intervention for different difficulties.

Database: EMBASE

25. Trajectories of maternal depression and offspring psychopathology at 6 years: 2004 Pelotas cohort study

Author(s): Matijasevich A.; Anselmi L.; Barros A.J.D.; Barros F.C.; Santos I.S.; Murray J.; Cooper P.J.

Source: Journal of Affective Disorders; Mar 2015; vol. 174 ; p. 424-431

Publication Date: Mar 2015

Publication Type(s): Article

Abstract:Background Few studies have addressed the course and severity of maternal depression and its effects on child psychiatric disorders from a longitudinal perspective. This study aimed to identify longitudinal patterns of maternal depression and to evaluate whether distinct depression trajectories predict particular psychiatric disorders in offspring. Methods Cohort of 4231 births followed-up in the city of Pelotas, Brazil. Maternal depressive symptoms were assessed with the Edinburgh Postnatal Depression Scale (EPDS) at 3, 12, 24 and 48 months and 6 years after delivery. Psychiatric disorders in 6-year-old children were evaluated through the development and well-being assessment (DAWBA) instrument. Trajectories of maternal depression were calculated using a group-based modelling approach. Results We identified five trajectories of maternal depressive symptoms: a "low" trajectory (34.8%), a "moderate low" (40.9%), a "increasing" (9.0%), a "decreasing" (9.9%), and a "high-chronic" trajectory (5.4%). The probability of children having any psychiatric disorder, as well as both internalizing and externalizing problems, increased as we moved from the "low" to the "high-chronic" trajectory. These differences were not explained by maternal and child characteristics examined in multivariate analyses. Limitations Data on maternal depression at 3-months was available on only a sub-sample. In addition, we had to rely on maternal report of child's behavior alone. Conclusions The study revealed an additive effect on child outcome of maternal depression over time. We identified a group of mothers with chronic and severe symptoms of depression throughout the first six years of the child life and for this group child psychiatric outcome was particularly compromised. Copyright © 2014 The Authors. Published by Elsevier B.V.

Database: EMBASE

26. The relationship between maternal depressive, anxious, and stress symptoms during pregnancy and adult offspring behavioral and emotional problems

Author(s): Betts K.S.; Williams G.M.; Najman J.M.; Alati R.

Source: Depression and Anxiety; Feb 2015; vol. 32 (no. 2); p. 82-90

Publication Date: Feb 2015

Publication Type(s): Article

Available in full text at [Depression and Anxiety](#) - from John Wiley and Sons

Abstract:Background Prenatal maternal depressive, anxious, and stress symptoms have been found to be associated with child and adolescent behavior problems. In this paper, we investigate their impact on behavior problems and depressive symptoms in adulthood. Methods Participants included 3,099 mother-offspring pairs from the Mater University Study of Pregnancy (MUSP), an Australian based, prebirth cohort study. We used latent class growth analysis (LCGA) with parallel processes to identify trajectories of maternal depressive, anxious, and stress symptoms over four time periods between the mothers' first clinic visit and 5 years postpregnancy. We fitted the estimates from the maternal trajectories in multivariate logistic regression models to predict internalizing and externalizing behavior at age 21. We adjusted for a wide range of prenatal and postnatal factors, including maternal life events, relationship quality, contact with the new born, as well as concurrent maternal depressive and anxious symptoms and father's history of mental health problem. Results LCGA found seven groups of mothers; one group of mothers exhibited high levels of depressive, anxious, and stress symptoms during pregnancy but not at later time points. Their offspring

experienced increased levels of behavior problems and depressive symptoms. Conclusions This paper provides the first evidence that high levels of maternal subjective depressive, anxious, and stress symptoms experienced in early pregnancy may predict internalizing and externalizing behavior problems and depressive symptoms in young adults. Copyright © 2014 Wiley Periodicals, Inc.

Database: EMBASE

27. Maternal stress during pregnancy is associated with moderate to severe depression in 11-year-old children

Author(s): Slykerman, Rebecca F.; Thompson, John; Waldie, Karen; Murphy, Rinki; Wall, Clare; Mitchell, Edwin A.

Source: Acta Paediatrica; Jan 2015; vol. 104 (no. 1); p. 68-74

Publication Date: Jan 2015

Publication Type(s): Journal Peer Reviewed Journal Journal Article

Available in full text at [Acta Paediatrica: Nurturing the Child](#) - from John Wiley and Sons

Abstract:Aim: Maternal stress during pregnancy has been associated with negative outcomes in children. We examined the risk factors for symptoms of depression in 11-year-old children, including the interaction between birthweight and other variables. Methods: We collected maternal, obstetric and demographic information from birth through to the age of 11. Approximately, half of the 609 children were born small-for-gestational-age (SGA). Information collected at 3.5 and 7 years of age included intelligence testing and parent-reported behavioural and emotional development. At 11 years of age, the children completed the Center for Epidemiological Studies Depression Scale for Children. Multivariable logistic regression analysis examined the relationship between self-reported symptoms of moderate to severe depression at the age of 11 and explanatory variables. Results: Symptoms of moderate to severe depression were related to increasing maternal stress during pregnancy, young maternal age, lower intelligence test scores at 7-years-old and being bullied at school in the previous 6 months. There was also a significant interaction between maternal stress in pregnancy and symptoms of depression in 11-year-old children born SGA. Conclusion: Increasing maternal stress during pregnancy was associated with increased risk of symptoms of moderate to severe depression in 11-year-old children, especially those who were born SGA. (PsycINFO Database Record (c) 2016 APA, all rights reserved) (Source: journal abstract)

Database: PsycINFO

28. Depression and antidepressants in pregnancy: Molecular and psychosocial mechanisms affecting offspring's physical and mental health

Author(s): Pariante, Carmine M.

Source: Neuropsychopharmacology; Jan 2015; vol. 40 (no. 1); p. 246-247

Publication Date: Jan 2015

Publication Type(s): Journal Peer Reviewed Journal Journal Article

Available in full text at [Neuropsychopharmacology](#) - from ProQuest

Available in full text at [Neuropsychopharmacology](#) - from National Library of Medicine

Abstract:In the face of this recent, reassuring evidence about antidepressants' use in pregnancy, longitudinal studies are confirming the long-lasting adverse consequences of untreated depression in pregnancy for the emotional development of the offspring, and especially the increased risk of the offspring being exposed to maltreatment and bullying in childhood, and developing depression and antisocial behavior in adolescence and early adulthood. These effects seem to be specific to

depression during pregnancy, as they are not explained by the fact that these mothers tend to be depressed also postnatally: they thus implicate in utero 'biological programming' as one of the potential mechanisms. (PsycINFO Database Record (c) 2016 APA, all rights reserved)

Database: PsycINFO

29. Spatial working memory and attention skills are predicted by maternal stress during pregnancy

Author(s): Plamondon, André; Akbari, Emis; Atkinson, Leslie; Steiner, Meir; Meaney, Michael J.; Fleming, Alison S.

Source: Early Human Development; Jan 2015; vol. 91 (no. 1); p. 23-29

Publication Date: Jan 2015

Publication Type(s): Journal Peer Reviewed Journal Journal Article

Abstract:Introduction: Experimental evidence in rodents shows that maternal stress during pregnancy (MSDP) negatively impacts spatial learning and memory in the offspring. We aim to investigate the association between MSDP (i.e., life events) and spatial working memory, as well as attention skills (attention shifting and attention focusing), in humans. The moderating roles of child sex, maternal anxiety during pregnancy and postnatal care are also investigated. Methods: Participants were 236 mother–child dyads that were followed from the second trimester of pregnancy until 4years postpartum. Measurements included questionnaires and independent observations. Results: MSDP was negatively associated with attention shifting at 18months when concurrent maternal anxiety was low. MSDP was associated with poorer spatial working memory at 4years of age, but only for boys who experienced poorer postnatal care. Conclusion: Consistent with results observed in rodents, MSDP was found to be associated with spatial working memory and attention skills. These results point to postnatal care and maternal anxiety during pregnancy as potential targets for interventions that aim to buffer children from the detrimental effects of MSDP. (PsycINFO Database Record (c) 2017 APA, all rights reserved) (Source: journal abstract)

Database: PsycINFO

30. Neurodevelopmental outcome for offspring of women treated for antenatal depression: a systematic review.

Author(s): Previti, Giovanni; Pawlby, Susan; Chowdhury, Sahmina; Aguglia, Eugenio; Pariante, Carmine M

Source: Archives of women's mental health; Dec 2014; vol. 17 (no. 6); p. 471-483

Publication Date: Dec 2014

Publication Type(s): Research Support, Non-u.s. Gov't Journal Article Review

Available in full text at [Archives of Women's Mental Health](#) - from Springer Link Journals

Available in full text at [Archives of Women's Mental Health](#) - from ProQuest

Abstract:The aim of this systematic review is to appraise existing literature on the effects of treatments for antenatal depression on the neurodevelopment outcomes of the offspring. We conducted a systematic review of the literature to identify studies on different kinds of treatments for antenatal depression (antidepressants and alternative therapies) and their effects on infants' neurodevelopment. After reading the title, abstract, or full text and applying exclusion criteria, a total of 22 papers were selected. Nineteen papers studied the effects of antidepressant drugs, one on docosahexanoic acid (DHA) (fish oil capsules) and two on massage therapy; however, no studies used a randomized controlled design, and in most studies, the control group comprise healthy women not exposed to depression. Comparisons between newborns exposed to antidepressants in

utero with those not exposed showed significant differences in a wide range of neurobehavioral outcomes, although in many cases, these symptoms were transient. Two studies found a slight delay in psychomotor development, and one study found a delay in mental development. Alternative therapies may have some benefits on neurodevelopmental outcomes. Our review suggests that antidepressant treatment may be associated with some neurodevelopmental changes, but we cannot exclude that some of these effects may be due to depression per se.

Database: Medline

31. Maternal depression, antidepressant prescriptions, and congenital anomaly risk in offspring: A population-based cohort study

Author(s): Ban L.; Gibson J.E.; West J.; Fiaschi L.; Sokal R.; Hubbard R.B.; Tata L.J.; Smeeth L.; Doyle P.

Source: BJOG: An International Journal of Obstetrics and Gynaecology; Nov 2014; vol. 121 (no. 12); p. 1471-1481

Publication Date: Nov 2014

Publication Type(s): Article

Available in full text at [BJOG: An International Journal of Obstetrics and Gynaecology](#) - from John Wiley and Sons

Abstract:Objective: To estimate risks of major congenital anomaly (MCA) among children of mothers prescribed antidepressants during early pregnancy or diagnosed with depression but without antidepressant prescriptions.Design: Population-based cohort study.Setting: Linked UK maternal-child primary care records.Population: A total of 349 127 singletons liveborn between 1990 and 2009.Methods: Odds ratios adjusted for maternal sociodemographics and comorbidities (aORs) were calculated for MCAs, comparing women with first-trimester selective serotonin reuptake inhibitors (SSRIs) or tricyclic antidepressants (TCAs) and women with diagnosed but unmedicated depression, or women without diagnosed depression.Main: outcome measures Fourteen system-specific MCA groups classified according to the European Surveillance of Congenital Anomalies and five specific heart anomaly groups.Results: Absolute risks of MCA were 2.7% (95% confidence interval, 95% CI, 2.6-2.8%) in children of mothers without diagnosed depression, 2.8% (95% CI 2.5-3.2%) in children of mothers with unmedicated depression, and 2.7% (95% CI 2.2-3.2%) and 3.1% (95% CI 2.2-4.1%) in children of mothers with SSRIs or TCAs, respectively. Compared with women without depression, MCA overall was not associated with unmedicated depression (aOR 1.07, 95% CI 0.96-1.18), SSRIs (aOR 1.01, 95% CI 0.88-1.17), or TCAs (aOR 1.09, 95% CI 0.87-1.38). Paroxetine was associated with increased heart anomalies (absolute risk 1.4% in the exposed group compared with 0.8% in women without depression; aOR 1.78, 95% CI 1.09-2.88), which decreased marginally when compared with women with diagnosed but unmedicated depression (aOR 1.67, 95% CI 1.00-2.80).Conclusions: Overall MCA risk did not increase with maternal depression or with antidepressant prescriptions. Paroxetine was associated with increases of heart anomalies, although this could represent a chance finding from a large number of comparisons undertaken.Copyright © 2014 The Authors.

Database: EMBASE

32. Prenatal maternal factors in the development of cognitive impairments in the offspring.

Author(s): Richetto, Juliet; Riva, Marco A

Source: Journal of reproductive immunology; Oct 2014; vol. 104

Publication Date: Oct 2014

Publication Type(s): Research Support, Non-u.s. Gov't Journal Article Review

Abstract: Different environmental factors acting during sensitive prenatal periods can have a negative impact on neurodevelopment and predispose the individual to the development of various psychiatric conditions that often share cognitive impairments as a common component. As cognitive symptoms remain one of the most challenging and resistant aspects of mental illness to be treated pharmacologically, it is important to investigate the mechanisms underlying such cognitive deficits, with particular focus on the impact of early life adverse events that predispose the individual to mental disorders. Multiple clinical studies have, in fact, repeatedly confirmed that prenatal maternal factors, such as infection, stress or malnutrition, are pivotal in shaping behavioral and cognitive functions of the offspring, and in the past decade many preclinical studies have investigated this hypothesis. The purpose of this review is to describe recent preclinical studies aimed at dissecting the relative impact of various prenatal maternal factors on the development of cognitive impairments in offspring, focusing on animal models of prenatal stress and prenatal infection. These recent studies point to the pivotal role of prenatal stressful experiences in shaping memory and learning functions associated with specific brain structures, such as the hippocampus and the prefrontal cortex. More importantly, such experimental evidence suggests that different insults converge on similar downstream functional targets, such as cognition, which may therefore represent an endophenotype for several pathological conditions. Future studies should thus focus on investigating the mechanisms contributing to the convergent action of different prenatal insults in order to identify targets for novel therapeutic intervention.

Database: Medline

33. Offspring of mothers who had antenatal depression and experienced maltreatment in childhood are more likely to experience child maltreatment themselves

Author(s): Capaldi D.M.

Source: Evidence-based nursing; Apr 2014; vol. 17 (no. 2); p. 37-38

Publication Date: Apr 2014

Publication Type(s): Note

Available in full text at [Evidence - Based Nursing](#) - from ProQuest

Available in full text at [Evidence-Based Nursing](#) - from Free Access Content

Available in full text at [Evidence-Based Nursing](#) - from Highwire Press

Database: EMBASE

34. The long-term effects of maternal depression: early childhood physical health as a pathway to offspring depression.

Author(s): Raposa, Elizabeth; Hammen, Constance; Brennan, Patricia; Najman, Jake

Source: The Journal of adolescent health : official publication of the Society for Adolescent Medicine; Jan 2014; vol. 54 (no. 1); p. 88-93

Publication Date: Jan 2014

Publication Type(s): Research Support, Non-u.s. Gov't Research Support, N.i.h., Extramural Journal Article

Abstract:**PURPOSE**Cross-sectional and retrospective studies have highlighted the long-term negative effects of maternal depression on offspring physical, social, and emotional development, but longitudinal research is needed to clarify the pathways by which maternal depression during pregnancy and early childhood affects offspring outcomes. The current study tested one developmental pathway by which maternal depression during pregnancy might negatively impact offspring mental health in young adulthood, via poor physical health in early childhood.**METHODS**The sample consisted of 815 Australian youth and their mothers who were followed for 20 years. Mothers reported on their own depressive symptoms during pregnancy and offspring early childhood. Youth completed interviews about health-related stress and social functioning at age 20 years, and completed a questionnaire about their own depressive symptoms 2 to 5 years later.**RESULTS**Path analysis indicated that prenatal maternal depressive symptoms predicted worse physical health during early childhood for offspring, and this effect was partially explained by ongoing maternal depression in early childhood. Offspring poor physical health during childhood predicted increased health-related stress and poor social functioning at age 20. Finally, increased health-related stress and poor social functioning predicted increased levels of depressive symptoms later in young adulthood. Maternal depression had a significant total indirect effect on youth depression via early childhood health and its psychosocial consequences.**CONCLUSIONS**Poor physical health in early childhood and its effects on young adults' social functioning and levels of health related stress is one important pathway by which maternal depression has long-term consequences for offspring mental health.

Database: Medline

35. No association between antenatal common mental disorders in low-obstetric risk women and adverse birth outcomes in their offspring: results from the CDS study in Ghana and Côte D'Ivoire.

Author(s): Bindt, Carola; Guo, Nan; Bonle, Marguerite Te; Appiah-Poku, John; Hinz, Rebecca; Barthel, Dana; Schoppen, Stefanie; Feldt, Torsten; Barkmann, Claus; Koffi, Mathurin; Loag, Wibke; Nguah, Samuel Blay; Eberhardt, Kirsten A; Tagbor, Harry; N'goran, Eliezer; Ehrhardt, Stephan; International CDS Study Group

Source: PloS one; 2013; vol. 8 (no. 11); p. e80711

Publication Date: 2013

Publication Type(s): Research Support, Non-u.s. Gov't Journal Article

Available in full text at [PLOS One](#) - from ProQuest

Available in full text at [PLOS ONE](#) - from National Library of Medicine

Abstract:**BACKGROUND**Evidence linking common mental disorders (CMD) in pregnant women to adverse birth outcomes is inconsistent, and studies often failed to control for pregnancy complications. This study aimed to explore the association between antenatal depression and anxiety symptoms and birth outcomes in a low-obstetric risk sample of mother/child dyads in Ghana and Côte d'Ivoire.**METHODS**In 2010-2011, a prospective cohort of 1030 women in their third

trimester in Ghana and Côte d'Ivoire was enrolled. Depression and anxiety were assessed in the third trimester using the Patient Health Questionnaire depression module and the 7-item Generalized Anxiety Disorder scale. 719 mother/child dyads were included in the analysis. We constructed multivariate regression models to estimate the association between CMD and low birth weight (LBW), and preterm birth (PTB) to control for potential confounders. **RESULTS** The prevalence of depression and anxiety symptoms were 28.9% and 14.2% respectively. The mean birth weight was 3172.1g (SD 440.6) and the prevalence of LBW was 1.7%. The mean gestational age was 39.6 weeks and the proportion of PTB was 4%. Multivariate linear regression revealed no significant association between maternal depression ($B=52.2$, 95% CI -18.2 122.6, $p=0.15$) or anxiety ($B=17.1$, 95% CI -74.6 108.7, $p=0.72$) and birth weight. Yet, low socio-economic status, female sex of the child, and younger maternal age were associated with lower birth weight. Multivariate logistic regression suggested no significant association between maternal depression (OR: 2.1, 95% CI 0.8 5.6, $p=0.15$) or anxiety (OR: 1.8, 95% CI 0.6 5.5, $p=0.29$) with PTB. **CONCLUSIONS** Our data suggests that depression and/or anxiety in the 3rd trimester of pregnancy are not independent predictors of adverse birth outcomes in low obstetric risk women. The role of pregnancy complications as confounders or effect modifiers in studies of maternal CMD and their impact on birth outcomes should be investigated.

Database: Medline

36. Maternal depression during pregnancy and the postnatal period: risks and possible mechanisms for offspring depression at age 18 years.

Author(s): Pearson, Rebecca M; Evans, Jonathan; Kounali, Daphne; Lewis, Glyn; Heron, Jon; Ramchandani, Paul G; O'Connor, Tom G; Stein, Alan

Source: JAMA psychiatry; Dec 2013; vol. 70 (no. 12); p. 1312-1319

Publication Date: Dec 2013

Publication Type(s): Research Support, Non-u.s. Gov't Research Support, N.i.h., Extramural Comparative Study Journal Article

Available in full text at [JAMA Psychiatry](#) - from Silverchair Information Systems

Abstract: **IMPORTANCE** Some small studies suggest that maternal postnatal depression is a risk factor for offspring adolescent depression. However, to our knowledge, no large cohort studies have addressed this issue. Furthermore, only 1 small study has examined the association between antenatal depression and later offspring depression. Understanding these associations is important to inform prevention. **OBJECTIVE** To investigate the hypothesis that there are independent associations between antenatal and postnatal depression with offspring depression and that the risk pathways are different, such that the risk is moderated by disadvantage (low maternal education) with postnatal depression but not with antenatal depression. **DESIGN, SETTING, AND PARTICIPANTS** Prospective investigation of associations between symptoms of antenatal and postnatal parental depression with offspring depression at age 18 years in a UK community-based birth cohort (Avon Longitudinal Study of Parents and Children) with data from more than 4500 parents and their adolescent offspring. **MAIN OUTCOMES AND MEASURES** Diagnosis of offspring aged 18 years with major depression using the International Classification of Diseases, 10th Revision. **RESULTS** Antenatal depression was an independent risk factor. Offspring were 1.28 times (95% CI, 1.08-1.51; $P = .003$) more likely to have depression at age 18 years for each standard deviation increase in maternal depression score antenatally, independent of later maternal depression. Postnatal depression was also a risk factor for mothers with low education, with offspring 1.26 times (95% CI, 1.06-1.50; $P = .01$) more likely to have depression for each standard deviation increase in postnatal depression score. However, for more educated mothers, there was little association (odds ratio, 1.09; 95% CI, 0.88-1.36; $P = .42$). Analyses found that maternal education moderated the effects of postnatal but not antenatal depression. Paternal depression

antenatally was not associated with offspring depression, while postnatally, paternal depression showed a similar pattern to maternal depression. **CONCLUSIONS AND RELEVANCE** The findings suggest that treating maternal depression antenatally could prevent offspring depression during adulthood and that prioritizing less advantaged mothers postnatally may be most effective.

Database: Medline

37. Exposure to maternal pre- and postnatal depression and anxiety symptoms: risk for major depression, anxiety disorders, and conduct disorder in adolescent offspring.

Author(s): Glasheen, Cristie; Richardson, Gale A; Kim, Kevin H; Larkby, Cynthia A; Swartz, Holly A; Day, Nancy L

Source: Development and psychopathology; Nov 2013; vol. 25 (no. 4); p. 1045-1063

Publication Date: Nov 2013

Publication Type(s): Research Support, N.i.h., Extramural Journal Article

Available in full text at [Development and Psychopathology](#) - from ProQuest

Abstract: This study evaluated whether exposure to maternal pre- or postnatal depression or anxiety symptoms predicted psychopathology in adolescent offspring. Growth mixture modeling was used to identify trajectories of pre- and postnatal depression and anxiety symptoms in 577 women of low socioeconomic status selected from a prenatal clinic. Logistic regression models indicated that maternal pre- and postnatal depression trajectory exposure was not associated with offspring major depression, anxiety, or conduct disorder, but exposure to the high depression trajectory was associated with lower anxiety symptoms in males. Exposure to medium and high pre- and postnatal anxiety was associated with the risk of conduct disorder among offspring. Male offspring exposed to medium and high pre- and postnatal anxiety had higher odds of conduct disorder than did males with low exposure levels. Females exposed to medium or high pre- and postnatal anxiety were less likely to meet conduct disorder criteria than were females with lower exposure. To the best of our knowledge, this is the first study to examine the effect of pre- and postnatal anxiety trajectories on the risk of conduct disorder in offspring. These results suggest new directions for investigating the etiology of conduct disorder with a novel target for intervention.

Database: Medline

38. Pain-related symptoms of temporomandibular disorders in the offspring of antenatally depressed mothers and depressed parents: A 31-year follow-up of the Northern Finland Birth Cohort 1966

Author(s): Pelkonen E.S.J.; Maki P.H.; Kyllonen M.A.; Miettunen J.A.; Taanila A.M.; Sipila K.K.

Source: European Journal of Pain (United Kingdom); Aug 2013; vol. 17 (no. 7); p. 1048-1057

Publication Date: Aug 2013

Publication Type(s): Article

Available in full text at [European Journal Of Pain](#) - from John Wiley and Sons

Available in full text at [European Journal of Pain](#) - from John Wiley and Sons

Abstract: Background: Temporomandibular disorders (TMDs) are clinical problems involving the masticatory muscles and temporomandibular joints (TMJs). Aspects of the aetiology of TMD are controversial. Many studies have identified an association between depression and TMD. The aim of the study was to evaluate the association between both maternal antenatal depression and parental depression during the offspring's childhood with TMD symptoms of the offspring during adulthood and to evaluate the effect of the offspring's own depression on this association. Methods: In the

general population-based Northern Finland Birth Cohort 1966 (NFBC 1966), mothers of 12,058 children were asked at mid-gestation at the antenatal clinic if they felt depressed. Of these offspring who had data available on TMD symptoms in the computer-aided inquiry at the 31-year field study, a final study data of 5541 subjects was compiled. The Finnish Hospital Discharge Register was used to identify depression in the parents between the years 1972 and 1984 (when offspring were 6-18 years old). Results: There were no statistically significant associations between TMD symptoms and maternal antenatal depressed mood. However, parental depression during the offspring's childhood associated significantly with facial pain [adjusted odds ratio (OR) = 1.64; 1.05-2.56] and with TMJ pain at jaw rest (OR = 1.81; 1.13-2.89), even after adjusting for gender, occupation of the father, family type at birth and the offspring's self-reported depression in adulthood. Conclusion: The risk for TMD symptoms is not elevated in the offspring of antenatally depressed mothers. Parental depression during an offspring's childhood increases the risk of pain-related TMD symptoms in their early adulthood. © 2012 European Federation of International Association for the Study of Pain Chapters.

Database: EMBASE

39. Antenatal depression and maternal and offspring hypothalamic-pituitary-adrenal (HPA) axis

Author(s): Osborne S.A.; Conroy S.; Fantini E.; Pariante C.M.; Pawlby S.J.; Zunszain P.

Source: Archives of Women's Mental Health; Jul 2013; vol. 16

Publication Date: Jul 2013

Publication Type(s): Conference Abstract

Available in full text at [Archives of Women's Mental Health](#) - from Springer Link Journals

Available in full text at [Archives of Women's Mental Health](#) - from ProQuest

Abstract: King's College London, United Kingdom Aims: To examine the effect of antenatal depression on maternal and offspring HPA axis, in order to improve the understanding of the mechanisms of developmental programming. Methods: Pregnant women were recruited at 25 weeks gestation; cases had a DSM-IV diagnosis of major depressive disorder (MDD) during pregnancy and controls had no history of psychiatric disorder. Demographics and mood were assessed at baseline; saliva cortisol was measured at awakening and 8pm at 32 weeks gestation, and infant saliva cortisol response to a painful stressor (before and 20 min after immunization) was measured at 8 weeks and 1 year postnatal. Case and control women were compared for cortisol, and their offspring for cortisol response to stress. Correlations were measured between maternal cortisol and infant cortisol response to stress. Results: 66 pregnant women were recruited, 46 controls and 20 cases. As cortisol values were not normally distributed, logarithm transformations were performed for the analyses; untransformed data are reported. Compared with controls, those with antenatal depression had higher evening saliva cortisol at 32 weeks gestation; control mean 3.25 nmol/L (SD 3.73), cases mean 5.12 nmol/L (SD 3.68), $t(64) = 2.66$, $p = .01$. For infants at 8 weeks postnatal, there was an overall positive correlation between maternal evening saliva cortisol at 32 weeks gestation and the size of infants' cortisol stress-response, $r = .346$, $p = .01$. At 1 year postnatal the correlation was not significant. In contrast, for infants at 1 year postnatal there was a significant interaction effect of exposure to depression in-utero on saliva cortisol stress-response, $F(1) = 8.61$, $p = .006$. The cortisol decreased in control offspring, delta mean -1.10 (SD 2.16), whilst it increased in case offspring, delta mean 1.88 (SD 3.82), independent t test $F = -2.91$ (36), $p = .006$. Conclusion: In support of proposed biological mechanisms of foetal programming, these results show that MDD in pregnancy is associated with altered HPA axis activity in mothers and their offspring. This has not previously been reported in prospectively assessed and operationally defined depression in pregnancy.

Database: EMBASE

40. Ante- and postpartum depression in Ghanaian and Ivorian women and impact on febrile illness in their offspring: A prospective, longitudinal birth-cohort study

Author(s): Ehrhardt S.

Source: American Journal of Epidemiology; Jun 2013; vol. 177

Publication Date: Jun 2013

Publication Type(s): Conference Abstract

Available in full text at [American Journal of Epidemiology](#) - from Oxford University Press ; Collection notes: To access please select Login with Athens and search and select NHS England as your institution before entering your NHS OpenAthens account details.

Available in full text at [American Journal of Epidemiology](#) - from Highwire Press

Abstract:In low-income countries perinatal depression is highly prevalent but longitudinal data on its influence on child health are rare. We examined the association between maternal depression and children's febrile illness. 654 mother/child dyads in Ghana and Cote d'Ivoire were enrolled in 2010-2011 in a prospective birth cohort for 2-years of follow up. Mothers were examined for depression using the Patient Health Questionnaire depression module antepartum, 3 and 12 months postpartum. The hazard of febrile illness in children of depressed and non-depressed mothers was estimated using a recurrent event Cox proportional hazards model adjusting for country and socio-economic status. The prevalence of antepartum depression in Cote d'Ivoire and Ghana was 28.3% and 26.3% respectively. The prevalences of depression at 3 and 12 months postpartum were 11.8% and 16.1% (Cote d'Ivoire) and 8.9% and 7.2% (Ghana). The crude and adjusted hazard ratios of febrile illness in children of depressed mothers compared to those of non-depressed mothers were 1.57 (95% confidence interval: 1.20, 2.07) and 1.32 (95% confidence interval: 1.01, 2.07) respectively. We constructed a cumulative depression exposure by categorizing mothers as never or once depressed and two or three times depressed. The crude and adjusted hazard ratio in children of recurrently depressed mothers compared to mothers with fewer episodes was 2.20 (95% confidence interval: 1.51, 3.19) and 1.90 (95% confidence interval: 1.32, 2.75) respectively. Perinatal depression was frequent in both countries and associated with febrile illness in the offspring. Evidence accumulates that the high depression prevalence in sub-Saharan Africa may pose a serious public health threat to women and their offspring.

Database: EMBASE

41. The effects of maternal depression and maternal selective serotonin reuptake inhibitor exposure on the offspring

Author(s): Olivier J.D.A.; Akerud H.; Kaihola H.; Skalkidou A.; Hogberg U.; Sundstrom-Poromaa I.; Pawluski J.L.

Source: Frontiers in Cellular Neuroscience; May 2013

Publication Date: May 2013

Publication Type(s): Review

Available in full text at [Frontiers in Cellular Neuroscience](#) - from National Library of Medicine

Available in full text at [Frontiers in Cellular Neuroscience](#) - from National Library of Medicine

Abstract:It has been estimated that 20% of pregnant women suffer from depression and it is well documented that maternal depression can have long-lasting effects on the child. Currently, common treatment for maternal depression has been the selective serotonin reuptake inhibitor medications (SSRIs) which are used by 2-3% of pregnant women in the Nordic countries and by up to 10% of

pregnant women in the United States. Antidepressants cross the placenta and are transferred to the fetus, thus, the question arises as to whether children of women taking antidepressants are at risk for altered neurodevelopmental outcomes and, if so, whether the risks are due to SSRI medication exposure or to the underlying maternal depression. This review considers the effects of maternal depression and SSRI exposure on offspring development in both clinical and preclinical populations. As it is impossible in humans to study the effects of SSRIs without taking into account the possible underlying effects of maternal depression (healthy pregnant women do not take SSRIs), animal models are of great value. For example, rodents can be used to determine the effects of maternal depression and/or perinatal SSRI exposure on offspring outcomes. Unraveling the joint (or separate) effects of maternal depression and SSRI exposure will provide more insights into the risks or benefits of SSRI exposure during gestation and will help women make informed decisions about using SSRIs during pregnancy. © 2013 Olivier, Akerud, Kaihola, Pawluski, Skalkidou, Hogberg and Sundstrom_poromaa.

Database: EMBASE

42. The impact of paternal and maternal depression on internalizing and externalizing disorders among offspring

Author(s): Jacobs R.H.; Warner V.; Weissman M.M.

Source: Comprehensive Psychiatry; Jan 2013; vol. 54 (no. 1)

Publication Date: Jan 2013

Publication Type(s): Conference Abstract

Available in full text at [Comprehensive Psychiatry](#) - from ProQuest

Abstract:The negative sequelae of maternal depression on offspring have been well documented, but few studies have examined the independent impact of paternal depression. We examine rates of internalizing mental health disorders (major depressive disorder and anxiety disorders) in youth, stratified by gender of depressed parent in a longitudinal family study. We also examine differences over the course of adolescent development. Relative risk ratios and confidence intervals were calculated in predicting youth disorder (depression or anxiety) from parental depression in a sample offspring. Both maternal and paternal depression increased the likelihood of internalizing disorders among youth. Youth with depressed fathers had an increased risk of MDD (n=99; RR, 1.7; 95% CI, 1.1-2.6; P=.02) and anxiety (n=94; RR, 1.9; 95% CI, 1.2-3.2; P=.01) when compared to youth with nondepressed fathers. Analyses on age of child at onset of paternal depression implicate early adulthood as a critical period, specifically age 18 or over (RR, 2.0; 95% CI, 1.1-3.6; P=.02); whereas a differential effect by age was not detected in the case of maternal depression. Interestingly, paternal MDD did not significantly impact youth younger than 13. This research suggests that depression in fathers independently impacts disorder in their offspring, particularly later in their adolescence (i.e., after age 18). Future research can examine whether pubertal status interacts with the sex of the affected parent in predicting onset of disorder in offspring.

Database: EMBASE

43. Maternal distress during pregnancy and offspring childhood overweight

Author(s): Ingstrup K.G.; Nohr E.A.; Schou Andersen C.; Ajslev T.A.; Sorensen T.I.A.; Pedersen P.

Source: Journal of Obesity; 2012; vol. 2012

Publication Date: 2012

Publication Type(s): Article

Available in full text at [Journal of Obesity](#) - from Hindawi Publishing Corporation

Available in full text at [Journal of Obesity](#) - from National Library of Medicine

Abstract:Background. Maternal distress during pregnancy increases the intrauterine level of glucocorticoids, which may have long-term health consequences for the child. Objective. To examine if distress as a combined measure of anxiety, depression, and stress of the mother during pregnancy was associated with offspring childhood overweight at age 7. Methods. We performed a cohort study using prospective data from 37,764 women and child dyads from the Danish National Birth Cohort (1996-2002). At a telephone interview at approximately 30 weeks gestation, the women reported whether they felt anxious, depressed, or stressed. The 95 percentile for body mass index in an international reference defined childhood overweight at any given age. Logistic regression was used for the analyses. Results. The prevalence of overweight children at 7 years of age was 9.9. Prenatal exposure to maternal distress during pregnancy was not associated with childhood overweight at 7 years of age (adjusted OR 1.06 (95 CI 0.96; 1.18)). In analyses stratified on sex, a small tendency of overweight was seen in boys (OR 1.15 (0.99; 1.33)), but not in girls (OR 0.98 (0.85; 1.13)). Conclusions. Maternal distress during pregnancy appeared to have limited, if any, influence on the risk of overweight in offspring at 7 years of age. © 2012 Katja Glejsted Ingstrup et al.

Database: EMBASE

44. The association between parental history of diagnosed mood/anxiety disorders and psychiatric symptoms and disorders in young adult offspring

Author(s): Low N.C.P.; Dugas E.; Karp I.; O'Loughlin J.; Constantin E.; Rodriguez D.

Source: BMC Psychiatry; 2012; vol. 12 (no. 1)

Publication Date: 2012

Publication Type(s): Article

Available in full text at [BMC Psychiatry](#) - from BioMed Central

Available in full text at [BMC Psychiatry](#) - from ProQuest

Abstract:Background: Parental history of mood or anxiety disorders is one of the strongest and most consistent risk factors for the development of these disorders in offspring. Gaps remain however in our knowledge of whether maternal or paternal disorders are more strongly associated with offspring disorders, and whether the association exists in non-clinical samples. This study uses a large population-based sample to test if maternal or paternal history of mood and/or anxiety disorders increases the risk of mood and/or anxiety disorders, or symptoms of specific anxiety disorders, in offspring. Methods: Data were drawn from the Nicotine Dependence in Teens Study, a prospective cohort investigation of 1293 grade 7 students. Data on mental health outcomes were collected in mailed self-report questionnaires when participants were aged 20.4 (0.7) years on average. Parental data were collected in mailed self-report questionnaires. This current analysis pertains to 564 participants with maternal and/or paternal data. The association between maternal and paternal history and each of diagnosed anxiety disorder, diagnosed mood disorder, and symptoms of specific anxiety disorders in offspring was studied in multivariate logistic regression. Results: A higher proportion of mothers than fathers had a diagnosed mood/anxiety disorder (23% versus 12%). Similarly, 14% of female offspring had a diagnosed mood/anxiety disorder, compared

to 6% of male offspring. The adjusted odds ratio (95% confidence interval) for maternal history was 2.2 (1.1, 4.5) for diagnosed mood disorders, 4.0 (2.1, 7.8) for diagnosed anxiety disorders, and 2.2 (1.2, 4.0) for social phobia symptoms. Paternal history was not associated with any of the mental health outcomes in offspring. Conclusion: Maternal, but not paternal mood/anxiety disorders were associated with diagnosed psychiatric disorders, as well as symptoms of specific anxiety disorders, in offspring. Efforts to detect mood and anxiety disorders in offspring with a maternal history should be encouraged. Copyright © 2012 Low et al.

Database: EMBASE

45. Untreated prenatal maternal depression and the potential risks to offspring: a review.

Author(s): Davalos, Deana B; Yadon, Carly A; Tregellas, Hope C

Source: Archives of women's mental health; Feb 2012; vol. 15 (no. 1); p. 1-14

Publication Date: Feb 2012

Publication Type(s): Research Support, Non-u.s. Gov't Journal Article Review

Available in full text at [Archives of Women's Mental Health](#) - from Springer Link Journals

Available in full text at [Archives of Women's Mental Health](#) - from ProQuest

Abstract:Research exploring the effects of prenatal maternal depression on a developing fetus and child is underrepresented in the literature. Empirical papers have typically focused on the effects of postpartum depression (after birth) instead of prepartum depression (before birth). Disparate empirical findings have produced ongoing debate regarding the effects of prenatal depression on a developing fetus and later in infancy and early childhood. Even more controversial is determining the role of antidepressant medication on offspring outcomes and whether research that does not include the proper control population (e.g., unmedicated depressed participants) can adequately address questions about risks and benefits of treatment during pregnancy. The current review systematically summarizes the literature focusing on unmedicated prenatal depression and offspring outcome and concludes that prepartum depression is highly prevalent, is associated with negative outcomes in offspring, and remains understudied.

Database: Medline

46. Stress during pregnancy and offspring pediatric disease: A National Cohort Study.

Author(s): Tegethoff, Marion; Greene, Naomi; Olsen, Jørn; Schaffner, Emmanuel; Meinschmidt, Gunther

Source: Environmental health perspectives; Nov 2011; vol. 119 (no. 11); p. 1647-1652

Publication Date: Nov 2011

Publication Type(s): Research Support, Non-u.s. Gov't Journal Article

Available in full text at [Environmental Health Perspectives](#) - from National Library of Medicine

Available in full text at [Environmental Health Perspectives](#) - from EBSCOhost

Available in full text at [Environmental Health Perspectives](#) - from ProQuest

Abstract:BACKGROUNDIdentifying risk factors for adverse health outcomes in children is important. The intrauterine environment plays a pivotal role for health and disease across life.OBJECTIVESWe conducted a comprehensive study to determine whether common psychosocial stress during pregnancy is a risk factor for a wide spectrum of pediatric diseases in the offspring.METHODSThe study was conducted using prospective data in a population-based sample of mothers with live singleton births (n = 66,203; 71.4% of those eligible) from the Danish National Birth Cohort. We

estimated the association between maternal stress during pregnancy (classified based on two a priori-defined indicators of common stress forms, life stress and emotional stress) and offspring diseases during childhood (grouped into 16 categories of diagnoses from the International Classification of Diseases, 10th Revision, based on data from national registries), controlling for maternal stress after pregnancy. RESULTS Median age at end of follow-up was 6.2 (range, 3.6-8.9) years. Life stress (highest compared with lowest quartile) was associated with an increased risk of conditions originating in the perinatal period [odds ratio (OR) = 1.13; 95% confidence interval (CI): 1.06, 1.21] and congenital malformations (OR=1.17; CI: 1.06, 1.28) and of the first diagnosis of infection [hazard ratio (HR) = 1.28; CI: 1.17, 1.39], mental disorders (age 0-2.5 years: HR = 2.03; CI: 1.32, 3.14), and eye (age 0-4.5 years: HR = 1.27; CI: 1.06, 1.53), ear (HR = 1.36; CI: 1.23, 1.51), respiratory (HR = 1.27; CI: 1.19, 1.35), digestive (HR = 1.23; CI: 1.11, 1.37), skin (HR = 1.24; CI: 1.09, 1.43), musculoskeletal (HR = 1.15; CI: 1.01-1.30), and genitourinary diseases (HR = 1.25; CI: 1.08, 1.45). Emotional stress was associated with an increased risk for the first diagnosis of infection (HR = 1.09; CI: 1.01, 1.18) and a decreased risk for the first diagnosis of endocrine (HR = 0.81; CI: 0.67, 0.99), eye (HR = 0.84; CI: 0.71, 0.99), and circulatory diseases (age 0-3 years: HR = 0.63; CI: 0.42, 0.95). CONCLUSIONS Maternal life stress during pregnancy may be a common risk factor for impaired child health. The results suggest new approaches to reduce childhood diseases.

Database: Medline

47. The effects of depression and use of antidepressive medicines during pregnancy on the methylation status of the IGF2 imprinted control regions in the offspring

Author(s): Soubry A.; Schildkraut J.M.; Wang F.; Hoyo C.; Murphy S.K.; Huang Z.; Murtha A.; Jirtle R.L.; Kurtzberg J.; Demark-Wahnefried W.; Forman M.R.

Source: Clinical Epigenetics; Oct 2011; vol. 3 (no. 2)

Publication Date: Oct 2011

Publication Type(s): Article

Available in full text at [Clinical Epigenetics](#) - from National Library of Medicine

Available in full text at [Clinical Epigenetics](#) - from BioMed Central

Abstract: In utero exposures to environmental factors may result in persistent epigenetic modifications affecting normal development and susceptibility to chronic diseases in later life. We explored the relationship between exposure of the growing fetus to maternal depression or antidepressants and DNA methylation at two differentially methylated regions (DMRs) of the imprinted Insulin-like Growth Factor 2 (IGF2) gene. Aberrant DNA methylation at the IGF2 and neighboring H19 DMRs has been associated with deregulated IGF2 expression, childhood cancers and several chronic diseases during adulthood. Our study population is comprised of pregnant mothers and their newborns (n = 436), as part of the Newborn Epigenetics Study (NEST). A standardized questionnaire was completed and medical record data were abstracted to ascertain maternal depression and antidepressive drug use. DMR methylation levels in umbilical cord blood leukocytes were quantified using pyrosequencing. From the 436 newborns, laboratory data were obtained for 356 individuals at the IGF2 DMRs, and for 411 individuals at the H19 DMRs; about half of each group was African American or Caucasian. While overall no association between depression and methylation profiles was found, we observed a significant hypermethylation of the H19 DMRs in newborns of African American (n = 177) but not Caucasian (n = 168) mothers who reported the use of antidepressive drugs during pregnancy (beta = +6.89, p = 0.01). Of note, our data reveal a race-independent association between smoking during pregnancy and methylation at the IGF2 DMR (+3.05%, p = 0.01). In conclusion, our findings suggest a race-dependent response related to maternal use of antidepressants at one of the IGF2 DMRs in the offspring. © 2011 Soubry et al; licensee BioMed Central Ltd.

Database: EMBASE

48. Could maternal perinatal atypical antipsychotic treatments program later metabolic diseases in the offspring?

Author(s): Guillemot, Johann; Laborie, Christine; Dutriez-Casteloot, Isabelle; Maron, Michel; Deloof, Sylvie; Lesage, Jean; Breton, Christophe; Vieau, Didier

Source: European journal of pharmacology; Sep 2011; vol. 667 (no. 1-3); p. 13-16

Publication Date: Sep 2011

Publication Type(s): Research Support, Non-u.s. Gov't Journal Article Review

Abstract:An association is established between schizophrenia and the development of metabolic alterations including cardiovascular diseases, type 2 diabetes and obesity. Perinatal insults, such as undernutrition, have been shown to increase the propensity to develop these pathologies, reinforcing the idea that schizophrenia may have a neurodevelopmental origin. Moreover, the use of second generation antipsychotics (SGAs) also known as "atypical" neuroleptics has also been demonstrated to exacerbate metabolic anomalies in patients with schizophrenia. SGAs are able to cross the placental barrier and have been detected in milk from women receiving atypical neuroleptics treatment during the perinatal period. To date, the consequences of such treatment have only been examined on the birth weight and the cognitive capacities of the child from women with schizophrenia, but no data is available concerning the putative long-term effects of SGAs on their body weight and metabolic parameters. We have recently reported that rat offspring from prenatally undernourished mothers exhibit a low birth weight associated with modified sensitivity to clozapine and aripiprazole in adulthood reinforcing the idea that some forms of schizophrenia may be acquired during early development. In view of these observations, the risks of perinatal exposure to SGAs must be weighed against the growing evidence that maternal psychiatric illness poses risks to the fetus/newborn as well as for long-term susceptibility to diseases. Thus, metabolic follow-up of children born from mothers treated by SGAs during the perinatal period will be clearly recommended, in particular if they exhibit alterations of their body weight during this early critical period.

Database: Medline

49. Antenatal depression and offspring psychopathology: The influence of childhood maltreatment

Author(s): Pawlby S.; Hay D.; Cerith S W.; Sharp D.; Pariante C.M.

Source: British Journal of Psychiatry; Aug 2011; vol. 199 (no. 2); p. 106-112

Publication Date: Aug 2011

Publication Type(s): Article

Available in full text at [British Journal of Psychiatry, The](#) - from Highwire Press

Abstract:Background: Antenatal depression and childhood maltreatment have each been associated with offspring psychopathology, but have never been examined in the same sample. Aims: To determine whether childhood maltreatment influences the association between antenatal depression and offspring psychopathology. Method: Prospectively collected data on antenatal depression, offspring maltreatment (age 11) and offspring psychopathology (age 11 and 16) were analysed in 120 mother-offspring dyads from the community-based South London Child Development Study. Results: Antenatal depression increased the risk of maltreatment in the offspring by almost four times. Children exposed only to antenatal depression or only to childhood maltreatment were no more at risk of developing psychopathology; however, children exposed to both antenatal depression and childhood maltreatment were at almost 12 times greater risk of

developing psychopathology than offspring not so exposed. Conclusions: Research investigating exposure to adverse events in utero and offspring psychopathology should take account of postnatal adverse events such as maltreatment.

Database: EMBASE

50. Depression during pregnancy: Is the developmental impact earlier in boys? A prospective case-control study

Author(s): Gerardin, Priscille; Wendland, Jaqueline; Bodeau, Nicolas; Galin, Armelle; Bialobos, Stéphanie; Tordjman, Sylvie; Mazet, Philippe; Darbois, Yves; Nizard, Jacky; Dommergues, Marc; Cohen, David

Source: The Journal of Clinical Psychiatry; Mar 2011; vol. 72 (no. 3); p. 378-387

Publication Date: Mar 2011

Publication Type(s): Journal Peer Reviewed Journal Journal Article

Abstract:Objective: Animal studies have shown sex differences in the impact of prenatal maternal stress on the offspring. The aim of this prospective case-control study was to assess the effect of prenatal depression on newborn and 1-year-old infant characteristics as related to gender, controlling for confounding variables. Method: We screened 205 pregnant women from April 2004 to November 2006 for depressive symptoms. Inclusion in the prenatal depression group (n = 34) was based on meeting DSM-IV criteria for major depressive episode. We excluded postnatal depression from the control group (n = 79) by routine screening at 2 and 6 months. Newborn and 1-year-old infant characteristics were evaluated with the Neonatal Behavioral Assessment Scale (NBAS) and the Infant-Toddler Social and Emotional Assessment, respectively. Results: Despite our use of numerous exclusion criteria (eg, at-risk pregnancy, preterm delivery), prenatal depression highly correlated with anxiety and stress scores. Male newborns of mothers with prenatal depression had lower scores than controls on the motor skills and regulation of states NBAS clusters (P = .03 and P = .026, respectively). At 1 year, infants of prenatally depressed mothers presented higher scores on generalized anxiety (P = .002), particularly in males (P = .009); activity/impulsivity (P = .042); and sleep problems (P = .023) than controls. Conclusions: As in animal studies, depression during pregnancy may affect infant development in a way that is related to gender. Early gender differences observed to be associated with depression, stress, and anxiety during pregnancy may be a key to understanding the higher prevalence in males of child psychiatric disorders. (PsycINFO Database Record (c) 2016 APA, all rights reserved) (Source: journal abstract)

Database: PsycINFO

51. Low birth weight in offspring of women with depressive and anxiety symptoms during pregnancy: results from a population based study in Bangladesh

Author(s): Nasreen H.E.; Kabir Z.N.; Forsell Y.; Edhborg M.

Source: BMC public health; 2010; vol. 10 ; p. 515

Publication Date: 2010

Publication Type(s): Article

Available in full text at [BMC Public Health](#) - from National Library of Medicine

Available in full text at [BMC Public Health](#) - from ProQuest

Available in full text at [BMC Public Health](#) - from BioMed Central

Abstract: There is a high prevalence of antepartum depression and low birth weight (LBW) in Bangladesh. In high- and low-income countries, prior evidence linking maternal depressive and anxiety symptoms with infant LBW is conflicting. There is no research on the association between maternal mental disorders and LBW in Bangladesh. This study aims to investigate the independent effect of maternal antepartum depressive and anxiety symptoms on infant LBW among women in a rural district of Bangladesh. A population-based sample of 720 pregnant women from two rural subdistricts was assessed for symptoms of antepartum depression, using the Edinburgh Postpartum Depression Scale (EPDS), and antepartum anxiety, using the State Trait Anxiety Inventory (STAI), and followed for 6-8 months postpartum. Infant birth weight of 583 (81%) singleton live babies born at term (> 37 weeks of pregnancy) was measured within 48 hours of delivery. Baseline data provided socioeconomic, anthropometric, reproductive, obstetric, and social support information. Trained female interviewers carried out structured interviews. Chi-square, Fisher's exact, and independent-sample t tests were done as descriptive statistics, and a multiple logistic regression model was used to identify predictors of LBW. After adjusting for potential confounders, depressive (OR = 2.24; 95% CI 1.37-3.68) and anxiety (OR = 2.08; 95% CI 1.30-3.25) symptoms were significantly associated with LBW (< 2.5 kg). Poverty, maternal malnutrition, and support during pregnancy were also associated with LBW. This study provides evidence that maternal depressive and anxiety symptoms during pregnancy predict the LBW of newborns and replicates results found in other South Asian countries. Policies aimed at the detection and effective management of depressive and anxiety symptoms during pregnancy may reduce the burden on mothers and also act as an important measure in the prevention of LBW among offspring in Bangladesh.

Database: EMBASE

52. Low birth weight in offspring of women with depressive and anxiety symptoms during pregnancy: A population based study in Bangladesh

Author(s): Nasreen Hashima E.; Kabir Z.; Forsell Y.; Edhborg M.

Source: Journal of Psychosomatic Obstetrics and Gynecology; Oct 2010; vol. 31 ; p. 94

Publication Date: Oct 2010

Publication Type(s): Conference Abstract

Abstract: Background: There are high prevalence of antepartum depression and low birth weight (LBW) in Bangladesh. In developed and developing countries, prior evidence linking maternal depressive and anxiety symptoms with infant's LBW is conflicting. There is no research on maternal mental disorders and LBW in Bangladesh. This aims to investigate the independent effect of maternal antepartum depressive and anxiety symptoms on LBW of infant among women in a rural district of Bangladesh. Method: A populationbased sample of 720 pregnant women from two rural sub-districts was assessed for symptoms of antepartum depression (Edinburg Postpartum Depression Scale) and antepartum anxiety (Trait Anxiety Inventory), and followed till 6-8 months

postpartum. Infant birth weight was measured on 583 (81%) singleton live babies within 48 hours of delivery. Baseline data provided socio-economic, anthropometric, reproductive, obstetric and social support information. Trained female interviewers carried out structured interviews. Results: After adjusting for potential confounders, depressive (OR = 2.24; 95% CI 1.37-3.68) and anxiety (OR = 2.08; 95% CI 1.30-3.25) symptoms were significantly associated with LBW (<2.5 kg). Poverty, maternal malnutrition and support during pregnancy were also associated with LBW. Conclusion: This study provides evidence of maternal depressive and anxiety symptoms during pregnancy predict LBW and replicates results found in other South Asian countries. Policies aimed at the detection and effective management of depressive and anxiety symptoms during pregnancy may reduce the burden on mothers and also act as important preventive measure for LBW of offspring in Bangladesh.

Database: EMBASE

53. Maternal stress during pregnancy and risk of schizophrenia in adult offspring

Author(s): Clarke M.; Cannon M.; Huttunen M.; Tanskanen A.

Source: Schizophrenia Research; Apr 2010; vol. 117 (no. 2); p. 270

Publication Date: Apr 2010

Publication Type(s): Conference Abstract

Abstract:Background: To determine if prenatal exposure to maternal stress is associated with an increased incidence of schizophrenia among exposed offspring compared to early childhood exposure to stress and if any effect seen is dependent on the timing of exposure during gestation. Methods: We identified all those born in Helsinki between 1947 and 1990 and whose father or older sibling died during their foetal period (N=2,074) through linking two national registers: the Finnish Population Register and the Cause of Death Register. Individuals whose father or older sibling died during early childhood (0-5 years) were identified for use as a comparison group (N=13,855). A third register, the Finnish Hospital Discharge Register, was used to determine psychiatric outcomes in adulthood of both exposure groups. Results: Early childhood stress due to the loss of a first degree relative led to a greater risk of developing schizophrenia in adulthood than prenatal exposure to such stress (OR 1.7, 95% CI 1.1-1.9). There was no effect of the timing of the exposure during gestation. There was a trend towards an increase in risk for schizophrenia when the relative died suddenly (acute stress) in both prenatal and childhood exposed groups compared to those whose relatives did not die from a sudden cause (OR 1.4, 95% CI 0.9-1.9). Discussion: The prenatal period may not be the most important time window in development for exposure to risk factors for schizophrenia. Aetiological theories of schizophrenia should take into account the importance of early childhood exposure to adverse events.

Database: EMBASE

54. The links between prenatal stress and offspring development and psychopathology: disentangling environmental and inherited influences

Author(s): Rice F.; Harold G.T.; Boivin J.; van den Bree M.; Hay D.F.; Thapar A.

Source: Psychological medicine; Feb 2010; vol. 40 (no. 2); p. 335-345

Publication Date: Feb 2010

Publication Type(s): Article

Available in full text at [Psychological Medicine](#) - from ProQuest

Abstract:BACKGROUND: Exposure to prenatal stress is associated with later adverse health and adjustment outcomes. This is generally presumed to arise through early environmentally mediated programming effects on the foetus. However, associations could arise through factors that influence mothers' characteristics and behaviour during pregnancy which are inherited by offspring. METHOD: A 'prenatal cross-fostering' design where pregnant mothers are related or unrelated to their child as a result of in vitro fertilization (IVF) was used to disentangle maternally inherited and environmental influences. If links between prenatal stress and offspring outcome are environmental, association should be observed in unrelated as well as related mother-child pairs. Offspring birth weight and gestational age as well as mental health were the outcomes assessed. RESULTS: Associations between prenatal stress and offspring birth weight, gestational age and antisocial behaviour were seen in both related and unrelated mother-offspring pairs, consistent with there being environmental links. The association between prenatal stress and offspring anxiety in related and unrelated groups appeared to be due to current maternal anxiety/depression rather than prenatal stress. In contrast, the link between prenatal stress and offspring attention deficit hyperactivity disorder was only present in related mother-offspring pairs and therefore was attributable to inherited factors. CONCLUSIONS: Genetically informative designs can be helpful in testing whether inherited factors contribute to the association between environmental risk factors and health outcomes. These results suggest that associations between prenatal stress and offspring outcomes could arise from inherited factors and post-natal environmental factors in addition to causal prenatal risk effects.

Database: EMBASE

55. Schizophrenia in the offspring of antenatally depressed mothers and with familial risk - The Northern Finland 1966 birth cohort

Author(s): Maki P.H.; Isohanni M.; Riekkki T.; Miettunen J.; Jones P.B.; Veijola J.M.

Source: European Psychiatry; 2009; vol. 24

Publication Date: 2009

Publication Type(s): Conference Abstract

Abstract:Aims: Schizophrenia is considered to be a neurodevelopmental disorder arising as a result of interactions between genetic vulnerability and environmental risk factors. We studied the association between mothers' antenatal depressed mood and schizophrenia in their adult offspring with special consideration to Familial Risk for psychosis. Method: In the Northern Finland 1966 Birth Cohort mothers of 12,058 children were asked at mid-gestation at the antenatal clinic if they felt depressed. This general population birth cohort of the children was followed up for over 30 years, being record-linked with the Finnish Hospital Discharge Register (FHDR) for detecting psychosis in the subjects. The FHDR was also used for identifying psychosis in the parents. Familial Risk for psychosis was considered as a genetic risk factor and mothers' depression as an environmental risk factor. Results: Offspring with both Familial Risk of psychosis and depressed mother had the highest cumulative incidence of schizophrenia, 7.4% (adjusted OR 10.3; 4.6-23.0). Of the offspring with only psychotic parent without antenatal depression, 2.3% got schizophrenia (OR 2.6; 1.2-5.4). In the

offspring without Familial Risk of psychosis and with maternal depression the risk of developing schizophrenia was not elevated. Conclusion: Mothers' depressed mood during pregnancy per se is unlikely to increase the risk for schizophrenia in the offspring, but may effect in subjects at risk for psychosis. This finding is an example of a gene x environment interaction in the development of schizophrenia.

Database: EMBASE

56. Antenatal depression predicts depression in adolescent offspring: prospective longitudinal community-based study.

Author(s): Pawlby, Susan; Hay, Dale F; Sharp, Deborah; Waters, Cerith S; O'Keane, Veronica

Source: Journal of affective disorders; Mar 2009; vol. 113 (no. 3); p. 236-243

Publication Date: Mar 2009

Publication Type(s): Research Support, Non-u.s. Gov't Journal Article

Abstract:BACKGROUND Depression is familial. Evidence shows that untreated postnatal depression is associated with adverse outcomes for the child. Few studies have traced prospectively the course of maternal depression through pregnancy, the postnatal period and the following 16 years in relation to adolescent offspring depression. METHOD The sample was recruited from two general practice antenatal clinics. Of 151 mother-child dyads followed from pregnancy to 16 years, information on the course of maternal depression and on depression in adolescent offspring was available for 127 (84%). RESULT Two-thirds (82/125) of the women had been depressed during the 17-year time period, with the majority (54/82) experiencing more than one episode. A third of the women were depressed in pregnancy (41/124). Over half of these women (23/41) had consulted a doctor about their mental health prior to being pregnant and almost 90% (35/39) had further episodes during the child's lifetime. 14% (18/127) of the adolescent offspring were diagnosed with a depressive disorder at 16 years. Every depressed adolescent had been exposed to maternal depression. The risk of depression for the 16-year-olds exposed to antenatal depression was 4.7 times greater than for offspring not so exposed. The effect of antenatal depression was mediated by repeated exposure. LIMITATION The number of study participants is small and limited to an inner-city population. Only depression spectrum diagnoses in the adolescent offspring have been considered. CONCLUSION Detection of depression in pregnancy identifies mothers at risk of further depressive episodes and a group of children who are at risk of depression in adolescence.

Database: Medline

57. Antepartum and postpartum exposure to maternal depression: Different effects on different adolescent outcomes

Author(s): Hay, Dale F.; Pawlby, Susan; Waters, Cerith S.; Sharp, Deborah

Source: Journal of Child Psychology and Psychiatry; Oct 2008; vol. 49 (no. 10); p. 1079-1088

Publication Date: Oct 2008

Publication Type(s): Journal Peer Reviewed Journal Journal Article

Available in full text at [Journal of Child Psychology and Psychiatry](#) - from John Wiley and Sons

Available in full text at [Journal of Child Psychology and Psychiatry](#) - from John Wiley and Sons

Abstract:Background: Postpartum depression (PPD) is considered a major public health problem that conveys risk to mothers and offspring. Yet PPD typically occurs in the context of a lifelong episodic illness, and its putative effects might derive from the child's exposure to other episodes, in pregnancy or later childhood. The aim of the study is to test two hypotheses: (1) that the effects of PPD on adolescent outcomes are partly explained by antepartum depression (APD) and (2) that the effects of APD and PPD are both explained by later exposure to the mother's depression. Method: A random sample of 178 antenatal patients was drawn from two general medical practices in South London; 171 gave birth to live infants, and 150 (88%) were assessed at 3 months post partum, with 121 of their offspring (81%) assessed for emotional disorders (ED), disruptive behaviour disorders (DBD) and IQ, at 11 and 16 years of age. Results: When APD and subsequent episodes of depression were taken into account, PPD had a significant effect on adolescent IQ, especially for boys, but did not predict psychopathology. ED and DBD in adolescence were predicted by the extent of exposure to maternal depression after 3 months post partum; a significant effect of APD on ED in girls was accounted for by later exposure to the mother's illness. Mothers' symptoms of anxiety, smoking and alcohol use in pregnancy did not predict adolescent outcomes, once maternal depression was taken into account. Conclusions: Some effects attributed to mothers' mental health problems in pregnancy or post partum may be mediated by cumulative exposure to maternal illness, probably reflecting genetic influence and gene-environment correlation. However, PPD has a direct effect on cognition. Clinicians should endeavour to identify women with depression in pregnancy (31% of this sample) and help them to manage their lifelong illness. (PsycINFO Database Record (c) 2016 APA, all rights reserved) (Source: journal abstract)

Database: PsycINFO

58. Acute maternal stress in pregnancy and schizophrenia in offspring: a cohort prospective study.

Author(s): Malaspina, D; Corcoran, C; Kleinhaus, K R; Perrin, M C; Fennig, S; Nahon, D; Friedlander, Y; Harlap, S

Source: BMC psychiatry; Aug 2008; vol. 8 ; p. 71

Publication Date: Aug 2008

Publication Type(s): Research Support, Non-u.s. Gov't Research Support, N.i.h., Extramural Journal Article

Available in full text at [BMC Psychiatry](#) - from National Library of Medicine

Available in full text at [BMC Psychiatry](#) - from National Library of Medicine

Available in full text at [BMC Psychiatry](#) - from BioMed Central

Abstract:UNLABELLEDSchizophrenia has been linked with intrauterine exposure to maternal stress due to bereavement, famine and major disasters. Recent evidence suggests that human vulnerability may be greatest in the first trimester of gestation and rodent experiments suggest sex specificity. We aimed to describe the consequence of an acute maternal stress, through a follow-up of offspring whose mothers were pregnant during the Arab-Israeli war of 1967. A priori, we focused on

gestational month and offspring's sex. **METHOD** In a pilot study linking birth records to Israel's Psychiatric Registry, we analyzed data from a cohort of 88,829 born in Jerusalem in 1964-76. Proportional hazards models were used to estimate the relative risk (RR) of schizophrenia, according to month of birth, gender and other variables, while controlling for father's age and other potential confounders. Other causes of hospitalized psychiatric morbidity (grouped together) were analyzed for comparison. **RESULTS** There was a raised incidence of schizophrenia for those who were in the second month of fetal life in June 1967 (RR = 2.3, 1.1-4.7), seen more in females (4.3, 1.7-10.7) than in males (1.2, 0.4-3.8). Results were not explained by secular or seasonal variations, altered birth weight or gestational age. For other conditions, RRs were increased in offspring who had been in the third month of fetal life in June 1967 (2.5, 1.2-5.2), also seen more in females (3.6, 1.3-9.7) than males (1.8, 0.6-5.2). **CONCLUSION** These findings add to a growing literature, in experimental animals and humans, attributing long term consequences for offspring of maternal gestational stress. They suggest both a sex-specificity and a relatively short gestational time-window for gestational effects on vulnerability to schizophrenia.

Database: Medline

59. Prenatal mood disturbance predicts sleep problems in infancy and toddlerhood

Author(s): O'Connor, Thomas G.; Caprariello, Peter; Blackmore, Emma Robertson; Gregory, Alice M.; Glover, Vivette; Fleming, Peter

Source: Early Human Development; Jul 2007; vol. 83 (no. 7); p. 451-458

Publication Date: Jul 2007

Publication Type(s): Journal Peer Reviewed Journal Journal Article

Abstract: Background: Experimental animal data link prenatal stress with sleep disturbance in offspring, but the link in humans is unclear. Aims: To investigate the link between prenatal maternal anxiety and depression and infant sleep disturbance from 6 to 30 months of age. Study Design: Longitudinal prospective study of a large birth cohort from pregnancy to 30 months. Questionnaire measures of anxiety and depression were completed by mothers at 18 and 32 weeks gestation and at 8 weeks and 8 months postpartum. Subjects: The ALSPAC cohort, a prospective community study of women in the UK who have been followed since pregnancy. Outcome Measures: Measures of total sleep time, number of awakenings, and broadly defined sleep problems were available on children at ages 6, 18, and 30 months. Results: Reliable measures of total sleep time, nighttime awakenings, and sleep problems were identified at 6, 18, and 30 months. Higher levels of prenatal maternal anxiety and depression predicted more sleep problems at 18 and 30 months, after controlling for postnatal mood and obstetric and psychosocial covariates; the association was not restricted to clinical extremes. No link with total sleep time was observed. Conclusions: Mood disturbance in pregnancy has persisting effects on sleep problems in the child, a finding that is consistent with experimental animal research. The findings add to a growing literature showing that maternal prenatal stress, anxiety, and depression may have lasting effects on child development. (PsycINFO Database Record (c) 2017 APA, all rights reserved) (Source: journal abstract)

Database: PsycINFO

60. The impact of gestational stress and prenatal growth on emotional problems in offspring: a review.

Author(s): Rice, F; Jones, I; Thapar, A

Source: Acta psychiatrica Scandinavica; Mar 2007; vol. 115 (no. 3); p. 171-183

Publication Date: Mar 2007

Publication Type(s): Research Support, Non-u.s. Gov't Journal Article Review

Available in full text at [Acta Psychiatrica Scandinavica](#) - from John Wiley and Sons

Abstract:OBJECTIVEEvents occurring very early in life, even prenatally, may have long-term effects on future health and behaviour. The influence of poor foetal growth and gestational stress in the mother on the risk of emotional problems in offspring was reviewed.METHODA selective review of the literature was undertaken.RESULTSStudies of preterm infants and infants born small for gestational age have shown increased levels of emotional problems across the lifespan. In general, studies examining maternal depression/anxiety during pregnancy and other indices of gestational stress have shown significant associations with emotional problems in children. The results of several studies also point to the importance of psychosocial and genetic factors in moderating associations.CONCLUSIONFuture research that focuses on identifying the mechanisms underlying these associations is needed. The moderating role of psychosocial and genetic risk factors is an important area in which future research should be directed. These findings have clinical implications for the provision of antenatal care.

Database: Medline

61. Maternal depression and psychiatric outcomes in adolescent offspring: A 13-year longitudinal study

Author(s): Halligan, Sarah L.; Murray, Lynne; Martins, Carla; Cooper, Peter J.

Source: Journal of Affective Disorders; Jan 2007; vol. 97 (no. 1-3); p. 145-154

Publication Date: Jan 2007

Publication Type(s): Journal Peer Reviewed Journal Journal Article

Abstract:Background: Maternal postnatal depression (PND) has been associated with adverse outcomes in young children, but an association with longer-term psychiatric disorder has not been demonstrated. We present the preliminary findings of a 13-year longitudinal study. Methods: In the course of a prospective longitudinal study, we examined DSM-IV Axis I disorders in 13-year-old adolescents who had (n = 53) or had not (n = 41) been exposed to maternal PND. We also detailed the occurrence of depression in mothers throughout the 13-year follow-up period. Results: Maternal PND was associated with higher rates of affective disorders in adolescent offspring. However, mothers who developed PND were also substantially more likely than those who did not to experience depression subsequently, a fact that contributed to the development of depressive disorder in offspring. Maternal PND was associated with increased risk for depression in adolescent offspring only if there had also been later episodes of maternal depression. In contrast, anxiety disorders in offspring were elevated in the maternal PND group regardless of the occurrence of subsequent maternal depression. Limitations: Due to the modest sample size and consequently limited power, findings must be regarded as preliminary. Conclusions: The particular association between early maternal depression and anxiety disorders in offspring was consistent with theories that emphasise the primacy of early environmental exposures. This position was not supported with respect to offspring depressive disorder, where overall duration of maternal depression was a significant factor. PND was associated with recurrent episodes of depression in the majority of cases, underlining the need for monitoring of this population beyond the postnatal period. (PsycINFO Database Record (c) 2016 APA, all rights reserved) (Source: journal abstract)

Database: PsycINFO

62. Maternal health in pregnancy and intellectual disability in the offspring: a population-based study.

Author(s): Leonard, Helen; de Klerk, Nick; Bourke, Jenny; Bower, Carol

Source: Annals of epidemiology; Jun 2006; vol. 16 (no. 6); p. 448-454

Publication Date: Jun 2006

Publication Type(s): Journal Article

Abstract:**PURPOSE**The aim of the study is to investigate the relationship between common maternal conditions and intellectual disability (ID) of unknown cause in the offspring.**METHODS**Information about the maternal health of children with and without ID was obtained by using record linkage. For mothers with specific medical conditions, proportions of children with mild to moderate ID, severe ID, and autism spectrum disorder (ASD) with ID were compared with those who did not have ID.**RESULTS**There was an increased risk for mild to moderate ID in children of mothers with asthma (odds ratio [OR], 1.52; confidence interval [CI], 1.26-1.83), diabetes (OR, 1.69; CI, 1.26-2.27), a renal or urinary condition (OR, 2.09; CI, 1.39-3.14), and epilepsy (OR, 3.53; CI, 2.56-4.84). ASD risk was increased for children of women with diabetes (OR, 2.89; CI, 1.28-6.51) and epilepsy (OR, 4.57; CI, 1.69-12.31). For anemia (n = 1101), there was an increased risk for severe ID (OR, 5.26; CI, 2.16-12.80).**CONCLUSIONS**The increased risk for ID in offspring of mothers with such conditions as asthma and diabetes is particularly important for disadvantaged or ethnic populations, for whom these conditions are more prevalent and may be less well managed.

Database: Medline

63. Neonatal outcomes in offspring of women with anxiety and depression during pregnancy. A linkage study from The Nord-Trøndelag Health Study (HUNT) and Medical Birth Registry of Norway.

Author(s): Berle, J Ø; Mykletun, A; Daltveit, A K; Rasmussen, S; Holsten, F; Dahl, A A

Source: Archives of women's mental health; Sep 2005; vol. 8 (no. 3); p. 181-189

Publication Date: Sep 2005

Publication Type(s): Research Support, Non-u.s. Gov't Journal Article

Available in full text at [Archives of Women's Mental Health](#) - from Springer Link Journals

Available in full text at [Archives of Women's Mental Health](#) - from ProQuest

Abstract:**BACKGROUND**The presence of mental disorder during pregnancy could affect the offspring.**AIMS**To examine the effects of anxiety disorder and depression in pregnant women on neonatal outcomes, and to compare neonatal outcomes between offspring of attendees and non-attendees in a general population-based health survey.**METHOD**Pregnant women (n = 680) were identified from the population-based health study of Nord-Trøndelag County (HUNT-2) by linkage with the Medical Birth Registry of Norway. The women rated themselves on the Hospital Anxiety and Depression Rating Scale (HADS). Outcome variables were gestational length, birth weight, and Apgar scores.**RESULTS**HADS-defined anxiety disorder during pregnancy was associated with lower Apgar score at one minute (score < 8; odds ratio = 2.27; p = .03) and five minutes (score < 8; odds ratio = 4.49; p = .016). No confounders were identified. Anxiety disorder and depression during pregnancy was not associated with low birth weight or preterm delivery. Offspring of non-attendees had a lower birth weight (77 g; t = 3.27; p = 0.001) and a shorter gestational length (1.8 days; t = 2.76; p = 0.006) than that of offspring of attendees, a difference that may be explained by a higher load of

psychosocial risk factors among the non-attendees.**CONCLUSION**In our study that may be biased towards the healthier among pregnant women, anxiety disorder or depression during pregnancy were not strong risk factors for adverse neonatal outcomes although low Apgar score in offspring of women with anxiety disorder may indicate poor neonatal adaptation.

Database: Medline

64. The potential influence of maternal stress hormones on development and mental health of the offspring.

Author(s): Weinstock, Marta

Source: Brain, behavior, and immunity; Jul 2005; vol. 19 (no. 4); p. 296-308

Publication Date: Jul 2005

Publication Type(s): Journal Article Review

Abstract:Recent studies in humans suggest that alterations in the activity of the neuroendocrine system mediate the effects of psychosocial stress on fetal development and birth outcome. Chronic maternal distress compromises the normal regulation of hormonal activity during pregnancy and elevates free circulating corticotrophin-releasing hormone (CRH), probably of placental origin, before the normal increase occurs at term. Excess CRH, and other hormones like cortisol and met-enkephalin that pass through the placenta, could precipitate preterm labor, reduce birth weight and slow growth rate in prenatally stressed infants. CRH and/or cortisol have also been associated with impaired fetal habituation to stimuli and temperamental difficulties in infants. These changes may result from actions of the hormones on their receptors in the fetal limbic system. In the rat, gestational stress and excess maternal and fetal plasma corticosterone cause downregulation of fetal glucocorticoid (GR) and mineralocorticoid (MR) receptors and impair the feedback regulation of the hypothalamic-pituitary adrenal (HPA) axis in infancy and adulthood. The impairment in HPA axis activity can be prevented by maternal adrenalectomy and mimicked by administration of glucocorticoids. Gestational stress also increases CRH activity in the amygdala and the incidence of anxiogenic and depressive-like behavior in rats and non-human primates, which can be ameliorated by CRH antagonists. Excess amounts of CRH and cortisol reaching the human fetal brain during periods of chronic maternal stress could alter personality and predispose to attention deficits and depressive illness through changes in neurotransmitter activity.

Database: Medline

65. Negative affect in offspring of depressed mothers is predicted by infant cortisol levels at 6 months and maternal depression during pregnancy, but not postpartum.

Author(s): Huot, R L; Brennan, P A; Stowe, Z N; Plotsky, P M; Walker, E F

Source: Annals of the New York Academy of Sciences; Dec 2004; vol. 1032 ; p. 234-236

Publication Date: Dec 2004

Publication Type(s): Clinical Trial Journal Article

Available in full text at [Annals of the New York Academy of Sciences](#) - from John Wiley and Sons

Abstract:This study tests the hypothesis that maternal depression during pregnancy predicts temperament in offspring aged 6 m to 5 y. Previous studies have shown that maternal depression is related to negative affect and that certain temperament factors, such as negative affect and behavioral inhibition, in children predict affective disorders. Here, maternal depression is divided into depression during pregnancy vs. depression postpartum. Maternal depression was determined by the Beck Depression Inventory (BDI) throughout pregnancy and postpartum (prospectively) and

by a diagnostic interview (SCID) at 6 months postpartum. The data show that maternal depression during pregnancy, but not postpartum, predicted the ratings of negative affect in the offspring. Importantly, symptoms of depression in the mother (BDI) were used as a control variable in the analyses in order to control for potential bias related to the mother's mood. In addition, cortisol levels in response to a mild stressor at 6 months of age predicted negative affect in infants and toddlers. We conclude that the effects of maternal depression on behavioral problems and vulnerability to mental illness may be mediated by altered temperament and enhanced stress responsiveness.

Database: Medline

66. Long-term outcome of offspring after maternal severe puerperal disorder

Author(s): Abbott, R.; Dunn, V. J.; Robling, S. A.; Paykel, E. S.

Source: Acta Psychiatrica Scandinavica; Nov 2004; vol. 110 (no. 5); p. 365-373

Publication Date: Nov 2004

Publication Type(s): Journal Peer Reviewed Journal Journal Article

Available in full text at [Acta Psychiatrica Scandinavica](#) - from John Wiley and Sons

Abstract:Objective: To study adult mental health in offspring of mothers who experienced severe puerperal disorder. Method: Mothers, followed up a mean of 23 years after puerperal disorder requiring hospitalization, were interviewed regarding adult psychiatric illness, childhood neurotic symptoms and conduct problems of 48 offspring of the index episode and 62 additional siblings. Results: In these predominantly young adults the lifetime rate of ICD- 10 adult psychiatric illness was 26%, and was higher in offspring of puerperal episodes (35% vs. 15%, $P = 0.07$). There were also high rates of childhood symptoms and problems. Conclusion: There are high lifetime rates of adult psychiatric illness in young adult offspring of mothers with puerperal disorder, which are likely to increase further with time, and warrant special attention. (PsycINFO Database Record (c) 2016 APA, all rights reserved) (Source: journal abstract)

Database: PsycINFO

67. Schizophrenia in the offspring of antenatally depressed mothers: a 31-year follow-up of the Northern Finland 1966 Birth Cohort.

Author(s): Mäki, Pirjo; Veijola, Juha; Rantakallio, Paula; Jokelainen, Jari; Jones, Peter B; Isohanni, Matti

Source: Schizophrenia research; Jan 2004; vol. 66 (no. 1); p. 79-81

Publication Date: Jan 2004

Publication Type(s): Research Support, Non-u.s. Gov't Letter

Database: Medline

68. Women with schizophrenia: pregnancy outcome and infant death among their offspring.

Author(s): Nilsson, Emma; Lichtenstein, Paul; Cnattingius, Sven; Murray, Robin M; Hultman, Christina M

Source: Schizophrenia research; Dec 2002; vol. 58 (no. 2-3); p. 221-229

Publication Date: Dec 2002

Publication Type(s): Research Support, Non-u.s. Gov't Journal Article

Abstract:Schizophrenia in the mother may imply an increased risk of adverse pregnancy outcome. However, inconclusive findings, unknown pathological mechanisms and possible confounding by social factors and smoking requests further explorations. The aim of this study were to (1) examine non-optimal pregnancy outcome using data from a population-based cohort, controlling for covariates known to influence fetal growth; and (2) perform separate analyses of women diagnosed before childbirth and women hospitalized for schizophrenia during pregnancy. The study sample comprised 2096 births by 1438 mothers diagnosed with schizophrenia (of whom 696 mothers were antenatal diagnosed and 188 admitted during pregnancy) and 1,555,975 births in the general population. We found significantly increased risks for stillbirth, infant death, preterm delivery, low birth weight, and small-for-gestational-age among the offspring of women with schizophrenia. Women with an episode of schizophrenia during pregnancy had the highest risks (e.g., low birth weight; OR 4.3, 95% CI 2.9-6.6 and stillbirth; OR 4.4, 95% CI 1.4-13.8). Controlling for a high incidence of smoking during pregnancy among schizophrenic women (51% vs. 24% in the normal population) and other maternal factors (single motherhood, maternal age, parity, maternal education, mothers' country of birth and pregnancy-induced hypertensive diseases) in a multiple regression model, reduced the risk estimates markedly. However, the risks for adverse pregnancy outcomes were even after adjustments generally doubled for women with an episode of schizophrenia during pregnancy compared to women in the control group (e.g., low birth weight; OR 2.3, 95% CI 1.5-3.5, preterm delivery; OR 2.4, 95% CI 1.5-3.8 and stillbirth; OR 2.5, 95% CI 0.8-7.9). The risks for preterm delivery and low birth weight were significantly elevated throughout the analyses. We conclude that schizophrenia in the mother implies an increased risk for poor perinatal outcome, not fully explained by maternal factors, and a need to consider a common familial (probably genetic) vulnerability for pre- and perinatal stress and schizophrenia.

Database: Medline

69. Antenatal anxiety predicts child behavioral/emotional problems independently of postnatal depression

Author(s): O'Connor, Thomas G.; Heron, Jonathan; Glover, Vivette

Source: Journal of the American Academy of Child & Adolescent Psychiatry; Dec 2002; vol. 41 (no. 12); p. 1470-1477

Publication Date: Dec 2002

Publication Type(s): Journal Peer Reviewed Journal Journal Article

Available in full text at [Journal of the American Academy of Child and Adolescent Psychiatry](#) - from Ovid

Abstract:Examined the hypothesis that the effects of postnatal depression on children's behavioral/emotional problems are explained by antenatal maternal mood. The current study investigated this hypothesis in the Avon Longitudinal Study of Parents and Children, a prospective, community-based study that has followed 7,144 women (aged 14-46 yrs) since pregnancy who delivered their baby between April 1, 1991, and December 31, 1992. Self-report measures of maternal anxiety and depression were assessed at repeated intervals in pregnancy and the postnatal period. Children's behavioral/emotional problems were assessed by parent report at age 4 years.

Postnatal depression at 8 weeks was associated with children's behavioral/emotional problems. Subsequent analyses that included antenatal maternal mood indicated that antenatal anxiety in late pregnancy and not antenatal depression was also independently associated with behavioral/emotional problems at age 4; 8 week postnatal depression remained a significant predictor after antenatal maternal mood was statistically controlled for. It is concluded that antenatal anxiety and postnatal depression represent separate risks for behavioral/emotional problems in children and act in an additive manner. (PsycINFO Database Record (c) 2016 APA, all rights reserved)

Database: PsycINFO

Strategy 191370

#	Database	Search term	Results
1	Medline	exp "MENTAL DISORDERS"/	1210225
2	Medline	(mental ADJ2 disorder*).ti,ab	34489
3	Medline	(psychiatric ADJ2 disorder*).ti,ab	36295
4	Medline	(1 OR 2 OR 3)	1230951
5	Medline	(pregn*).ti,ab	395342
6	Medline	exp PREGNANCY/	806571
7	Medline	(5 OR 6)	888746
8	Medline	(offspring OR "off spring").ti,ab	57888
9	Medline	(4 AND 7 AND 8)	2503
10	Medline	(offspring OR "off spring").ti	12509
11	Medline	(4 AND 7 AND 10)	719
12	Medline	(pregn* OR antenatal* OR prenatal OR "pre natal").ti	229990
13	Medline	(4 AND 10 AND 12)	294
14	Medline	("mental health").ti	40990
15	Medline	(7 AND 10 AND 14)	16
16	Medline	(perinatal).ti	21030
17	Medline	(4 AND 10 AND 16)	18
18	Medline	(maternal).ti	64914
19	Medline	(4 AND 10 AND 18)	325

20	Medline	(7 AND 19)	263
21	EMBASE	exp "MENTAL DISEASE"/	1837363
22	EMBASE	exp PREGNANCY/	657038
23	EMBASE	*PROGENY/	6616
24	EMBASE	(21 AND 22 AND 23)	400
25	EMBASE	*"MENTAL DISEASE"/	93730
26	EMBASE	(22 AND 23 AND 25)	21
27	EMBASE	*PREGNANCY/	133415
28	EMBASE	(21 AND 23 AND 27)	158
29	EMBASE	(offspring OR "off spring").ti	14847
30	EMBASE	(pregn* OR antenatal* OR prenatal OR "pre natal").ti	279407
31	EMBASE	(21 AND 29 AND 30)	533
32	PsycINFO	exp "MENTAL DISORDERS"/	528736
33	PsycINFO	exp PREGNANCY/	21775
34	PsycINFO	exp OFFSPRING/	14454
35	PsycINFO	(32 AND 33 AND 34)	122
36	PsycINFO	exp "EXPECTANT MOTHERS"/	584
37	PsycINFO	(32 AND 34 AND 36)	3
38	PsycINFO	exp "MENTAL HEALTH"/	54725
39		(34 AND 38)	301
40	PsycINFO	(33 AND 39)	14
41	EMBASE	exp "PUERPERAL DEPRESSION"/ OR exp	8971

"PUERPERAL PSYCHOSIS"/

42	EMBASE	(23 AND 41)	57
43	PsycINFO	*"POSTPARTUM DEPRESSION"/	3471
44	PsycINFO	*"POSTPARTUM PSYCHOSIS"/	222
45	PsycINFO	(43 OR 44)	3654
46	PsycINFO	(34 AND 45)	46