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Date: 20 February 2020
Sources Searched: Medline, Embase, PsycINFO, CINAHL.

Schizophrenia and Childbirth

See full search strategy

1. Psychiatric illness in women requesting caesarean section.

Author(s): Sydsjö, G; Möller, L; Lilliecreutz, C; Bladh, M; Andolf, E; Josefsson, A

Source: BJOG : an international journal of obstetrics and gynaecology; Feb 2015; vol. 122 (no. 3); p. 351-358

Publication Date: Feb 2015

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

PubMedID: 24628766

Abstract:OBJECTIVETo compare psychiatric in- and outpatient care during the 5 years before first delivery in primiparae delivered by caesarean section on maternal request with all other primiparae women who had given birth during the same time period.DESIGNProspective, population-based register study.SETTINGSweden.SAMPLEWomen giving birth for the first time between 2002 and 2004 (n = 64 834).METHODSWomen giving birth by caesarean section on maternal request (n = 1009) were compared with all other women giving birth (n = 63 825). The exposure of interest was any psychiatric diagnosis according to the International Statistical Classification of Diseases and Related Health Problems (ninth revision, ICD-9, 290-319; tenth revision, ICD-10, F00-F99) in The Swedish national patient register during the 5 years before first delivery.MAIN OUTCOME MEASURESPsychiatric diagnoses and delivery data.RESULTSThe burden of psychiatric illnesses was significantly higher in women giving birth by caesarean section on maternal request (10 versus 3.5%, P < 0.001). The most common diagnoses were 'Neurotic disorders, stress-related disorders and somatoform disorders' (5.9%, aOR 3.1, 95% CI 1.1-2.9), and 'Mood disorders' (3.4%, aOR 2.4, 95% CI 1.7-3.6). The adjusted odds ratio for caesarean section on maternal request was 2.5 (95% CI 2.0-3.2) for any psychiatric disorder. Women giving birth by caesarean section on maternal request were older, used tobacco more often, had a lower educational level, higher body mass index, were more often married, unemployed, and their parents were more often born outside of Scandinavia (P < 0.05).CONCLUSIONSWomen giving birth by caesarean section on maternal request more often have a severe psychiatric disease burden. This finding points to the need for psychological support for these women as well as the need to screen and treat psychiatric illness in pregnant women.

Database: Medline

2. Schizophrenia and pregnancy: a national register-based follow-up study among Finnish women born between 1965 and 1980.

Author(s): Simoila, Laura; Isometsä, Erkki; Gissler, Mika; Suvisaari, Jaana; Halmesmäki, Erja; Lindberg, Nina

Source: Archives of Women's Mental Health; Feb 2020; vol. 23 (no. 1); p. 91-100

Publication Date: Feb 2020

Publication Type(s): Academic Journal

Abstract: To assess psychosocial and somatic risk factors related to pregnancy, and pregnancy-related complications or disorders in women with schizophrenia compared to population controls. In this register-based cohort study, we identified all Finnish women who were born in 1965–1980 and diagnosed with schizophrenia in psychiatric care before 31 December 2013. For each case, five age- and place-of-birth matched controls were randomly selected. They were followed from the day when the disorder was diagnosed in specialized health care till the end of 2013. The mean follow-up time was 14.0 + 6.91 vs. 14.3 + 6.89 years. Altogether, 1162 singleton pregnancies were found among affected women and 4683 among controls. Affected women were significantly older and more often single; their body mass index before pregnancy was significantly higher, and they smoked significantly more often both in the beginning of pregnancy and after the first trimester than controls. They showed a significantly higher odds for pathologic oral glucose tolerance test (odds ratio (OR) 1.66, 95% confidence interval (95% CI) 1.27–2.17), initiation of insulin treatment (OR 1.84, 95% CI 1.15–2.93), fast fetal growth (OR 1.62, 95% CI 1.03–2.52), premature contractions (OR 2.42, 95% CI 1.31–4.49), hypertension (OR 1.81, 95% CI 1.01–3.27), and pregnancy-related hospitalizations (OR 1.97, 95% CI 1.66–2.33). Suspected damage to the fetus from alcohol/drugs was significantly more common among affected women than controls. Women with schizophrenia have higher prevalence of psychosocial and somatic risk factors related to pregnancy, as well as pregnancy-related complications and disorders than non-affected women.

Database: CINAHL

3. Maternal schizophrenia and adverse birth outcomes: what mediates the risk?

Author(s): Vigod, Simone N; Fung, Kinwah; Amartey, Abigail; Bartsch, Emily; Felemban, Reema; Saunders, Natasha; Guttmann, Astrid; Chiu, Maria; Barker, Lucy C; Kurdyak, Paul; Brown, Hilary K

Source: Social psychiatry and psychiatric epidemiology; Dec 2019

Publication Date: Dec 2019

Publication Type(s): Journal Article

PubMedID: 31811316

Available at Social psychiatry and psychiatric epidemiology - from SpringerLink - Medicine

Abstract:PURPOSEMaternal schizophrenia is associated with adverse birth outcomes, but the reasons for this remain unclear. In a population-based cohort of infants born to women with schizophrenia, we determined the occurrence of key perinatal outcomes and explored whether factors identifiable in our datasets explained any elevated risk.METHODSUsing population-level health administrative data linked to clinical birth-registry data in Ontario, Canada (2006-2011), we examined the relative risk (RR) of preterm birth (< 37 weeks), small for gestational age (SGA), and Apgar scores < 8 in infants of women with schizophrenia (n = 4279) versus infants of unaffected women (n = 286,147). Generalized estimating equations determined whether reproductive history, maternal health conditions, pregnancy exposures, and complications explained elevated RRs.RESULTSAmong infants of women with schizophrenia, risk was higher for prematurity (11.4% vs. 6.9%, aRR 1.64, 95% CI 1.51-1.79), SGA (3.5% vs. 2.5%, aRR 1.40, 95% CI 1.20-1.64), and Apgar score < 8 at 1 (19.0% vs. 12.8%, aRR 1.49, 95% CI 1.40-1.59) and 5 min (5.6% vs. 3.0%, aRR 1.90, 95% CI 1.68-2.16). Smoking, fourfold more common among women with schizophrenia, was the variable that explained the greatest proportion of the elevated aRR for prematurity (9.9%), SGA (28.7%), and Apgar < 8 at 1 and 5 min (9.8%, 5.6%). Illicit substance use, certain reproductive history variables, and pregnancy complications also contributed to the elevated aRR for preterm birth.CONCLUSIONSElevated risks of preterm birth, SGA, and low Apgar scores in infants of women with schizophrenia are partly explained by potentially modifiable factors such as smoking and illicit drug use, suggesting opportunities for targeted intervention.

Database: Medline

4. Obstetric outcomes for women with severe mental illness: 10 years of experience in a tertiary multidisciplinary antenatal clinic

Author(s): Frayne J.; Allen S.; Vickery A.; Nguyen T.; Hauck Y.; Liira H.

Source: Archives of Gynecology and Obstetrics; Oct 2019; vol. 300 (no. 4); p. 889-896

Publication Date: Oct 2019

Publication Type(s): Article

PubMedID: 31410569

Available at Archives of gynecology and obstetrics - from SpringerLink - Medicine

Abstract: Purpose: This study aims to describe 10 years of antenatal care and outcomes for women with a severe mental illness (SMI). Method(s): A retrospective cohort study of 420 completed pregnancy records over the last 10 years (2007-2017). Findings were compared to the Western Australian (WA) pregnancy data. Antenatal attendance, demographic, obstetric, neonatal and psychosocial variables were analysed using t tests, chi2, ANOVA and odds ratio (OR). Result(s): Overall, women with a SMI had high rates of comorbidity (47%), antenatal complications, and preterm birth at 12.6% compared to WA mothers ($p < 0.001$). Those with schizophrenia were at highest risk with increased risk of threatened preterm labour OR 8.25 (95% CI 4.64-14.65), gestational diabetes OR 3.59 (95% CI 2.18-5.91) and reduced likelihood of a spontaneous vaginal birth OR 0.46 (95% CI 0.29-0.71). Late presentation and antenatal attendance for women with SMI were significantly associated with maternal substance use, psychiatric admission during pregnancy, and child welfare involvement. Women with schizophrenia had significantly lower attendance rates at scheduled antenatal care (ANC) appointments than those with bipolar disease (87.1% vs 94%, $p = 0.003$). Conclusion(s): Obstetric outcomes are poorer for women with SMI compared to the general population. They have higher rates of medical comorbidities, lifestyle and psychosocial risks factors that are known to contribute to poor obstetric outcomes. Effective delivery of regular and appropriate ANC is essential in addressing these multifactorial risks. Targeted strategies addressing comprehensive medical management, preterm birth prevention, lifestyle modifications and increased psychosocial support could improve both short- and long-term outcomes for these women and their children.

Database: EMBASE

5. Association between maternal serious mental illness and adverse birth outcomes

Author(s): Heun-Johnson H.; Seabury S.A.; Menchine M.; Axeen S.; Lakshmanan A.; Claudius I.

Source: Journal of Perinatology; May 2019; vol. 39 (no. 5); p. 737-745

Publication Date: May 2019

Publication Type(s): Article

PubMedID: 30850757

Available at Journal of perinatology : official journal of the California Perinatal Association - from Unpaywall

Abstract: Objective: To evaluate the contribution of serious mental illness (SMI) and specific risk factors (comorbidities and substance use) to the risk of adverse birth outcomes. Study design: This cross-sectional study uses maternal delivery records in the Healthcare Cost and Utilization Project Nationwide/National Inpatient Sample (HCUP-NIS) to estimate risk factor prevalence and relative risk of adverse birth outcomes (e.g., preeclampsia, preterm birth, and fetal distress) in women with SMI. Result(s): The relative risk of adverse gestational (1.15, 95% CI: 1.13-1.17), obstetric (1.07, 1.06-1.08), and fetal (1.24, 1.21-1.26) outcomes is increased for women with SMI. After adjusting for risk factors, the risk is significantly reduced but remains elevated for all three adverse outcome categories (gestational: 1.08, 1.06-1.09; obstetric: 1.03, 1.02-1.05; fetal: 1.12, 1.09-1.14). Conclusion(s): Maternal serious mental illness is independently associated with increased risk for adverse birth outcomes. However, approximately half of the excess risk is attributable to comorbidities and substance use.

Database: EMBASE

6. Supporting a Woman with Psychosis During Childbirth: A Case Study.

Author(s): Kohal, Betty J.

Source: International Journal of Childbirth Education; Apr 2019; vol. 34 (no. 2); p. 40-42

Publication Date: Apr 2019

Publication Type(s): Academic Journal

Abstract: Schizophrenia is a serious mental illness. When women with schizophrenia become pregnant, they are at greater risk for low birth weights, pre-eclampsia, thromboembolisms, preterm births, small for gestational age, and large for gestational age. The use of antipsychotic medications is paramount for maintaining functional capacity. Anti-psychotic medications all cross the placenta barrier. Supporting a woman who has a thought disorder produces complex challenges. A case study is provided describing the role of a clinical nurse specialist during the birthing process and post-partum.

Database: CINAHL

7. Adverse obstetric and neonatal outcomes complicated by psychosis among pregnant women in the United States.

Author(s): Zhong, Qiu-Yue; Gelaye, Bizu; Fricchione, Gregory L; Avillach, Paul; Karlson, Elizabeth W; Williams, Michelle A

Source: BMC pregnancy and childbirth; May 2018; vol. 18 (no. 1); p. 120

Publication Date: May 2018

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

PubMedID: 29720114

Abstract:BACKGROUNDAdverse obstetric and neonatal outcomes among women with psychosis, particularly affective psychosis, has rarely been studied at the population level. We aimed to assess the risk of adverse obstetric and neonatal outcomes among women with psychosis (schizophrenia, affective psychosis, and other psychoses).METHODSFrom the 2007 - 2012 National (Nationwide) Inpatient Sample, 23,507,597 delivery hospitalizations were identified. From the same hospitalization, International Classification of Diseases diagnosis codes were used to identify maternal psychosis and outcomes. Adjusted odds ratios (aOR) and 95% confidence intervals (CI) were obtained using logistic regression.RESULTSThe prevalence of psychosis at delivery was 698.76 per 100,000 hospitalizations. After adjusting for sociodemographic characteristics, smoking, alcohol/substance abuse, and pregnancy-related hypertension, women with psychosis were at a heightened risk for cesarean delivery (aOR = 1.26; 95% CI: 1.23 - 1.29), induced labor (aOR = 1.05; 95% CI: 1.02 - 1.09), antepartum hemorrhage (aOR = 1.22; 95% CI: 1.14 - 1.31), placental abruption (aOR = 1.22; 95% CI: 1.13 - 1.32), postpartum hemorrhage (aOR = 1.18; 95% CI: 1.10 - 1.27), premature delivery (aOR = 1.40; 95% CI: 1.36 - 1.46), stillbirth (aOR = 1.37; 95% CI: 1.23 - 1.53), premature rupture of membranes (aOR = 1.22; 95% CI: 1.15 - 1.29), fetal abnormalities (aOR = 1.49; 95% CI: 1.38 - 1.61), poor fetal growth (aOR = 1.26; 95% CI: 1.19 - 1.34), and fetal distress (aOR = 1.14; 95% CI: 1.10 - 1.18). Maternal death during hospitalizations (aOR = 1.00; 95% CI: 0.30 - 3.31) and excessive fetal growth (aOR = 1.06; 95% CI: 0.98 - 1.14) were not statistically significantly associated with psychosis.CONCLUSIONSPregnant women with psychosis have elevated risk of several adverse obstetric and neonatal outcomes. Efforts to identify and manage pregnancies complicated by psychosis may contribute to improved outcomes.

Database: Medline

8. Obstetric and neonatal outcomes in women with schizophrenia and the impact of psychiatric admission during pregnancy

Author(s): Frayne J.; Allen S.; Renganathan K.; Harris E.

Source: BJOG: An International Journal of Obstetrics and Gynaecology; Mar 2018; vol. 125 ; p. 136-137

Publication Date: Mar 2018

Publication Type(s): Conference Abstract

Available at BJOG: An International Journal of Obstetrics & Gynaecology - from Wiley Online Library

Abstract: Introduction Women with schizophrenia are known to have poor obstetric and neonatal outcomes. This study aims to determine these outcomes, along with psychiatric admission rates as a marker of relapse during pregnancy and the impact of this on outcomes. Methods A cohort sample of 98 singleton pregnancies to women with schizophrenia managed in a specialised antenatal clinic in Western Australia (WA) from 2008 to 2016 was retrospectively examined. Data collected included demographic, psychosocial, obstetric, neonatal and psychiatric relapse. This was compared to the WA Mother and Baby perinatal data 2012. Descriptive data was analysed using SPPS software. Results The cohort demographic data was comparable to the WA perinatal population, with an over representation of Indigenous (24.5% cf 4.9%, $P < 0.001$), smokers (58.2% cf 11.6%, $P < 0.001$) and obese women (38.8% cf 23.1%, $P < 0.001$). There were statistically significant higher rates of pre-existing medical comorbidities, antenatal and delivery complications, and women were less likely to achieve a normal vaginal birth ($P = 0.005$). Neonatal outcomes demonstrated lower Apgar scores at 1 and 5 minutes ($P < 0.001$), significantly higher rates of small-forgestational- age infants (10.3% cf 5.3%, $P = 0.02$) and special care nursery admission ($P < 0.001$), but not preterm birth. Overall, 40.8% required psychiatric admission during pregnancy, with no significant trend regarding trimester timing, although 50% of these occurred in the first trimester. Psychiatric admission was associated with substance use (57%, $P = 0.01$), but not significantly associated with poorer obstetric or neonatal outcomes. Conclusion Women with schizophrenia are a high risk population in pregnancy. Psychiatric admission does not appear to increase this risk further with specialised antenatal care management.

Database: EMBASE

9. Association between maternal serious mental illness and adverse birth outcomes

Author(s): Heun-Johnson H.; Seabury S.A.; Menchine M.; Claudius I.; Axeen S.; Lakshmanan A.

Source: Journal of Investigative Medicine; Jan 2018; vol. 66 (no. 1); p. 193-194

Publication Date: Jan 2018

Publication Type(s): Conference Abstract

Abstract: Purpose of study Women with serious mental illness (SMI) during pregnancy are at an increased risk for adverse birth outcomes. However, no previous study has disentangled the direct effects of SMI on a wide range of birth outcomes from the presence of confounding risk factors associated with SMI. This study estimates the effect of SMI on adverse birth outcomes controlling for a wide variety of these confounding risk factors. Methods used This was a retrospective study using the Healthcare Cost and Utilisation Project's National Inpatient Sample with 20% of discharges from participating hospitals in the U. S. from 2008 to 2014. We identified the prevalence of ten risk factors associated with adverse birth outcomes (anaemia, diabetes, infections, obesity, thyroid dysfunction, epilepsy, malposition/ malpresentation of the fetus, and tobacco, drug, or alcohol abuse) and a diagnosis of SMI (major depressive disorder, bipolar disorder, and/or schizophrenia) from the maternal records of all births for mothers aged 10 or older. We report relative risk (RR) of adverse gestational, obstetric and fetal outcomes in women with SMI, using multivariable logistic regression to adjust for hospital/patient characteristics (race, age, payer, urban/rural, U.S. region, income, year, and weekend, elective, or emergency department admission) and the aforementioned risk factors. Summary of results Our sample includes more than 5 million births, 43 042 of which had a recorded maternal SMI (7.8 per 1000 births). The unadjusted relative risk of adverse birth outcomes was increased for women with SMI. Adjusting for hospital/patient characteristics and risk factors reduced the relative risk, but it remained significantly elevated for all three outcomes (table 1). Conclusions Addressing SMI-associated risk factors prior to or during pregnancy and child birth, and increasing awareness of maternal SMI in clinical settings may reduce the occurrence of adverse birth outcomes in this at-risk population. (Table Presented).

Database: EMBASE

10. Mental health after first childbirth in women requesting a caesarean section; a retrospective register-based study

Author(s): Moller L.; Josefsson A.; Bladh M.; Lilliecreutz C.; Sydsjo G.; Andolf E.

Source: BMC Pregnancy and Childbirth; Sep 2017; vol. 17 (no. 1)

Publication Date: Sep 2017

Publication Type(s): Article

PubMedID: 28969603

Abstract: Background: Psychiatric illness before delivery increases the risk of giving birth by caesarean section on maternal request (CSMR) but little is known about these women's mental health after childbirth. In this study we aimed to compare the prevalence of psychiatric disorders five years before and after delivery in primiparae giving birth by CS on maternal request to all other primiparae giving birth, indifferent on their mode of delivery. Method(s): The study population comprised all women born in Sweden 1973-1983 giving birth for the first time in 2002-2004. Psychiatric diagnoses, in- and outpatient care were retrieved from the National Patient Register in Sweden. The risk of psychiatric care after childbirth was estimated using CSMR, previous mental health and sociodemographic variables as covariates. Result(s): Psychiatric disorders after childbirth were more common in women giving birth by CSMR compared to the other women (11.2% vs 5.5%, p<0.001). CSMR increased the risk of psychiatric disorders after childbirth (aOR 1.5, 95% CI 1.2-1.9). The prevalence of psychiatric disorders had increased after compared to before childbirth (mean difference 0.02+/-0.25, 95% CI 0.018-0.022, p<0.001). Women giving birth by CSMR tended to be diagnosed in the inpatient care more often (54.9% vs. 45.8%, p=0.056) and were more likely to have been diagnosed before childbirth as well (39.8% vs. 24.2%, p<0.001). Conclusion(s): Women giving birth by CSMR more often suffer from psychiatric disorders both before and after delivery. This indicates that these women are a vulnerable group requiring special attention from obstetric- and general health-care providers. This vulnerability should be taken into account when deciding on mode of delivery.

Database: EMBASE

11. Women with bipolar disorder at high risk of relapse after childbirth.

Author(s): Bland, Phillip

Source: The Practitioner; Mar 2016; vol. 260 (no. 1791); p. 5

Publication Date: Mar 2016

Publication Type(s): Editorial

PubMedID: 27214973

Available at The Practitioner - from ProQuest (Health Research Premium) - NHS Version

Database: Medline

12. Maternal psychiatric disorders and risk of preterm birth

Author(s): Mannisto T.; Mendola P.; O'Loughlin J.; Werder E.; Grantz K.L.; Kiely M.; Chen Z.; Ehrenthal D.B.

Source: Annals of Epidemiology; Jan 2016; vol. 26 (no. 1); p. 14-20

Publication Date: Jan 2016

Publication Type(s): Article

PubMedID: 26586549

Available at Annals of epidemiology - from Unpaywall

Abstract: Purpose To study the effect of maternal psychiatric disorders (depression, anxiety disorder, bipolar disease, schizophrenia, unspecified psychiatric disorder, and comorbid conditions) and odds of preterm birth. Methods The Consortium on Safe Labor (2002-2008), an observational cohort with 12 centers from across the United States included 223,394 singleton pregnancies with clinical data obtained from electronic medical records and maternal diagnoses of psychiatric disorders from maternal discharge summaries. Length of gestation was based on the best clinical estimate and categorized as birth less than 39, less than 37, less than 34, and less than 28 weeks' gestation. The adjusted odds ratios (ORs) with 95% confidence intervals of birth were estimated by logistic regression with generalized estimating equations. Results Any maternal psychiatric disorder was associated with odds of birth less than 39 weeks' gestation (odds ratio [OR] = 1.32, 95% confidence interval = 1.28-1.37), less than 37 weeks' gestation (OR = 1.45, 1.38-1.52), less than 34 weeks' gestation (OR = 1.47, 1.35-1.59), and less than 28 weeks' gestation (OR = 1.57, 1.36-1.82). Specifically, odds of birth less than 37 weeks' gestation were associated with maternal depression (OR = 1.31, 1.23-1.40), anxiety disorder (OR = 1.68, 1.41-2.01), depression with anxiety disorder (OR = 2.31, 1.93-2.78), bipolar disease (OR = 1.54, 1.22-1.94), bipolar disease with depression and/or anxiety disorder (OR = 1.70, 1.30-2.22), and unspecified psychiatric disorder (OR = 1.52, 1.41-1.64). Conclusions Maternal psychiatric disorders, especially comorbid psychiatric conditions, were associated with increased likelihood of preterm birth.

Database: EMBASE

13. Pregnant women with schizophrenia are at higher risk of pre-eclampsia, venous thromboembolism and adverse neonatal outcomes.

Author(s): Raimondi, Aubrey; Sheiner, Eyal

Source: Evidence-based nursing; Apr 2015; vol. 18 (no. 2); p. 39-40

Publication Date: Apr 2015

Publication Type(s): Journal Article Comment

PubMedID: 25179642

Available at Evidence-based nursing - from BMJ Journals - NHS

Available at Evidence-based nursing - from ProQuest (Health Research Premium) - NHS Version

Abstract: Implications for practice and research: Higher rates of preterm delivery and small for gestational age (SGA) babies in schizophrenic mothers confirm previous findings in the context of newer antipsychotic drugs and treatment practices. Women with schizophrenia should be counselled about increased risks and followed by a provider specialising in high-risk pregnancies. Strategies to address modifiable risk factors during pregnancy and the perinatal period are necessary. Special attention should be given to smoking cessation and control of blood pressure. Novel findings include increased rates of thromboembolic disease in pregnancy and large for gestational age (LGA) infants in births involving schizophrenic mothers. Further studies should assess whether potential confounding factors such as body mass index (BMI), alcohol, tobacco and drug use, and the type of antipsychotic medications used, affect the novel findings reported.

Database: Medline

14. Adverse obstetric and neonatal outcomes in women with mental disorders

Author(s): Hoirisch-Clapauch S.; Brenner B.; Nardi A.E.

Source: Thrombosis Research; Feb 2015; vol. 135

Publication Date: Feb 2015

Publication Type(s): Article

PubMedID: 25903540

Abstract: The brain and the placenta synthesize identical peptides and proteins, such as brain-derived neurotrophic factor, oxytocin, vascular endothelial growth factor, cortisol, and matrix metalloproteinases. Given the promiscuity between neurochemistry and the mechanism of placentation, it would be expected that mental disorders occurring during pregnancy would increase the risk of adverse obstetric and neonatal outcomes. Indeed, expectant mothers with anxiety disorders, post-traumatic stress disorder, schizophrenia, or depressive disorders are at higher risk of preterm birth, low-birth-weight and small-for-gestational-age infants than controls. These mental illnesses are accompanied by a procoagulant phenotype and low activity of tissue plasminogen activator, which may contribute to placental insufficiency. Another risk factor for pregnancy complications is hyperemesis gravidarum, more common among women with eating disorders or anxiety disorders than in controls. Severe hyperemesis gravidarum is associated with dehydration, electrolyte imbalance and malnutrition, all of which may increase the risk of miscarriages, of low-birth-weight babies and preterm birth. This paper reviews some aspects of mental disorders that may influence pregnancy and neonatal outcomes.

Database: EMBASE

15. Chronic mental illness in pregnancy and postpartum

Author(s): Nau, Melissa L.; Peterson, Alissa M.

Source: Women's reproductive mental health across the lifespan; 2014 ; p. 123-455

Publication Date: 2014

Publication Type(s): Book Edited Book Chapter

Abstract: The reproductive years confer the greatest risk in a woman's lifetime for the development of mental illness. In this chapter, we focus on bipolar disorder and schizophrenia, specifically as these disorders relate to puerperal periods, which include pregnancy and the postpartum period. As both bipolar disorder and schizophrenia can begin in early adulthood, women are at risk of having mood or psychotic episodes throughout their reproductive years. Additionally, because childbirth and reproductive events can be significant and stressful for women, illness episodes are often triggered during this time. Although we focus on the entire reproductive period for this chapter, it is noteworthy that the postpartum period is widely considered a high-risk period for the onset or the exacerbation of severe mood or psychotic episodes. (PsycINFO Database Record (c) 2017 APA, all rights reserved) (Source: chapter)

Database: PsycINFO

16. Bipolar disorder, affective psychosis, and schizophrenia in pregnancy and the post-partum period

Author(s): Jones, Ian; Chandra, Prabha S; Dazzan, Paola; Howard, Louise M

Source: The Lancet; Nov 2014; vol. 384 (no. 9956); p. 1789-1799

Publication Date: Nov 2014

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

PubMedID: 25455249

Available at Lancet (London, England) - from ProQuest (Health Research Premium) - NHS Version

Available at Lancet (London, England) - from Patricia Bowen Library & Knowledge Service West Middlesex University Hospital NHS Trust (lib302631) Local Print Collection [location] : Patricia Bowen Library and Knowledge Service West Middlesex university Hospital.

Abstract: The perinatal period is associated with an increased risk of severe mental disorders. We summarise the evidence regarding the epidemiology, risk factors, and treatment of severe mental illness in relation to childbirth, focusing on bipolar disorder, affective psychosis, and schizophrenia. We discuss women with ongoing chronic conditions and those with the onset of new episodes of post-partum psychosis. Despite the importance of perinatal episodes, with suicide a leading cause of maternal death, few studies are available to guide the management of women with severe mental disorders in pregnancy and the post-partum period. However, general principles of management are discussed, including the need for an individual risk–benefit analysis for each woman. (PsycINFO Database Record (c) 2016 APA, all rights reserved) (Source: journal abstract)

Database: PsycINFO

17. Adverse obstetric and neonatal outcomes in women with severe mental illness: to what extent can they be prevented?

Author(s): Judd, Fiona; Komiti, Angela; Sheehan, Penny; Newman, Louise; Castle, David; Everall, Ian

Source: Schizophrenia research; Aug 2014; vol. 157 (no. 1-3); p. 305-309

Publication Date: Aug 2014

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

PubMedID: 24934903

Abstract:BACKGROUNDWomen with schizophrenia and bipolar disorder are at a higher risk of obstetric and neonatal complications. The aim of this study was to better understand the factors that may influence these adverse outcomes.METHODWe examined obstetric and neonatal outcomes of pregnant women with schizophrenia and bipolar disorder and factors possibly influencing these outcomes. A retrospective review of the medical history of 112 women with a DSM-IV diagnosis of schizophrenia or bipolar disorder was undertaken. Data for controls were extracted from the hospital's electronic birth record data.RESULTSWomen with schizophrenia and bipolar disorder presented later for their first antenatal visit and had higher rates of smoking and illicit drug use than the control group. They also had higher rates of pre-eclampsia and gestational diabetes. Their infants were less likely to have Apgar scores 8-10 at both 1 and 5minutes and were more likely to be admitted to special care/neonatal intensive care nursery than the infants of controls. The rate of pre-term birth was significantly increased in the women with schizophrenia and bipolar disorder. Pre-term birth and admission to special care/neonatal intensive care were predicted by smoking and illicit drug use.CONCLUSIONThese data point to potentially modifiable factors as significant contributors to the high rate of adverse obstetric and neonatal outcomes in women with mental illness. Comprehensive management of women with mental illness prior to, during pregnancy and in the postnatal period may have long-term benefits for their offspring.

Database: Medline

18. Severe mental illness and induction of labour: outcomes for women at a specialist antenatal clinic in Western Australia.

Author(s): Frayne, Jacqueline; Lewis, Lucy; Allen, Suzanna; Hauck, Yvonne; Nguyen, Thinh

Source: The Australian & New Zealand journal of obstetrics & gynaecology; Apr 2014; vol. 54 (no. 2); p. 132-137

Publication Date: Apr 2014

Publication Type(s): Journal Article

PubMedID: 24172035

Abstract:BACKGROUNDLimited evidence is available around induction of labour (IOL) and obstetric outcomes for pregnant women with severe mental illness (SMI).AIMSOur study examined obstetric and neonatal outcomes for women attending a specialist childbirth and mental illness (CAMI) antenatal clinic in Perth, Western Australia (WA), who experienced or did not experience IOL.METHODSA retrospective study was conducted between December 2007 and May 2012 (n = 222), using patient records and computerised perinatal data collected by the Obstetrics and Gynaecology Clinical Care Unit. Descriptive statistics and univariate comparisons using Mann-Whitney tests and X(2) tests were conducted using SPSS.RESULTSThe overall rate of IOL in this study group was 40%, which was significantly higher than the WA Mother Baby Statistics by 11.6% (95% CI 4.9-18.3%, P < 0.002). Of those induced, 30% (27 of 185) were induced for psychiatric reasons.

Women with schizophrenia were more likely to have IOL for an obstetric/fetal reason than a psychiatric reason (45% vs. 15%, P = 0.051). Women who experienced an IOL were less likely to have a spontaneous vaginal delivery (SVD) and more likely to have an assisted vaginal birth or emergency caesarean section (P = 0.040). Irrespective of labour onset, special care nursery admission (SCN) rates were similar and high for both groups (36% vs. 32%, P = 0.599).CONCLUSIONObstetric management for women with SMI is complex, and psychiatric factors as well as medical factors must be considered to ensure the best outcomes for mother and infant.

Database: Medline

19. Maternal and newborn outcomes among women with schizophrenia: a retrospective population-based cohort study.

Author(s): Vigod, S N; Kurdyak, P A; Dennis, C L; Gruneir, A; Newman, A; Seeman, M V; Rochon, P A; Anderson, G M; Grigoriadis, S; Ray, J G

Source: BJOG : an international journal of obstetrics and gynaecology; Apr 2014; vol. 121 (no. 5); p. 566-574

Publication Date: Apr 2014

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

PubMedID: 24443970

Available at BJOG : an international journal of obstetrics and gynaecology - from Wiley Online Library

Abstract:OBJECTIVEMore women with schizophrenia are becoming pregnant, such that contemporary data are needed about maternal and newborn outcomes in this potentially vulnerable group. We aimed to quantify maternal and newborn health outcomes among women with schizophrenia.DESIGNRetrospective cohort study.SETTINGPopulation based in Ontario, Canada, from 2002 to 2011.POPULATIONOntario women aged 15-49 years who gave birth to a liveborn or stillborn singleton infant.METHODSWomen with schizophrenia (n = 1391) were identified based on either an inpatient diagnosis or two or more outpatient physician service claims for schizophrenia within 5 years prior to conception. The reference group comprised 432 358 women without diagnosed mental illness within the 5 years preceding conception in the index pregnancy.MAIN OUTCOME MEASURESThe primary maternal outcomes were gestational diabetes mellitus, gestational hypertension, pre-eclampsia/eclampsia, and venous thromboembolism. The primary neonatal outcomes were preterm birth, and small and large birthweight for gestational age (SGA and LGA). Secondary outcomes included additional key perinatal health indicators.RESULTSSchizophrenia was associated with a higher risk of pre-eclampsia (adjusted odds ratio, aOR 1.84; 95% confidence interval, 95% CI 1.28-2.66), venous thromboembolism (aOR 1.72, 95% CI 1.04-2.85), preterm birth (aOR 1.75, 95% CI 1.46-2.08), SGA (aOR 1.49, 95% CI 1.19-1.86), and LGA (aOR 1.53, 95% CI 1.17-1.99). Women with schizophrenia also required more intensive hospital resources, including operative delivery and admission to a maternal intensive care unit, paralleled by higher neonatal morbidity.CONCLUSIONSWomen with schizophrenia are at higher risk of multiple adverse pregnancy outcomes, paralleled by higher neonatal morbidity. Attention should focus on interventions to reduce the identified health disparities.

Database: Medline

20. Exacerbation of psychotic disorder during pregnancy in the context of medication discontinuation.

Author(s): Wakil, Laura; Perea, Elena; Penaskovic, Kenan; Stuebe, Alison; Meltzer-Brody, Samantha

Source: Psychosomatics; 2013; vol. 54 (no. 3); p. 290-293

Publication Date: 2013

Publication Type(s): Case Reports Journal Article

PubMedID: 23218063

Available at Psychosomatics - from Free Medical Journals . com

Database: Medline

21. Obstetric and neonatal outcomes of pregnant women with severe mental illness at a specialist antenatal clinic.

Author(s): Nguyen, Thinh N; Faulkner, Deb; Frayne, Jacqueline S; Allen, Suzanna; Hauck, Yvonne L; Rock, Daniel; Rampono, Jonathan

Source: Medical Journal of Australia; Aug 2013; vol. 199 (no. 3)

Publication Date: Aug 2013

Publication Type(s): Academic Journal

PubMedID: NLM25369845

Abstract: Objective: To evaluate the obstetric and neonatal outcomes of pregnant women with severe mental illness (SMI) who attended a specialist multidisciplinary antenatal clinic in Perth, Western Australia.Design, Setting and Participants: A retrospective case-note audit of outcomes from the Childbirth and Mental Illness Antenatal Clinic (CAMI clinic) at King Edward Memorial Hospital for pregnant women with severe mental illness (SMI), aged 18-41 years, who gave birth between December 2007 and April 2011, and their babies.Main Outcome Measures: Obstetric and neonatal outcomes for 138 women and newborns from singleton live births. Data were compared between three diagnostic groups (schizophrenia, bipolar and non-psychotic SMI), and with WA obstetric and perinatal statistics for 2008.Results: 44 women with schizophrenia, 56 with bipolar disorder and 38 with non-psychotic SMI attended antenatal care for an average of 7.7 (SD, 3.3) visits. The proportion of women who smoked tobacco was significantly higher than that in the WA antenatal population (46% v 15%; $P < 0.0001$). Alcohol use, illicit substance use and psychotropic medication exposure during pregnancy were high. The women were at increased risk of developing gestational diabetes mellitus (15% v 4%; $P < 0.0001$) and pre-eclampsia (9% v 3%; $P < 0.0001$), and birth complications were more common. Babies born to CAMI clinic women were less likely to have Apgar scores ≥ 8 at 1 minute and 5 minutes. Pregnant women with schizophrenia had more psychiatric relapses during pregnancy, and had more statutory child welfare involvement. Gestational age at birth and infant birth weights were similar for the pregnant women with SMI and the WA population in 2008.Conclusions: Women attending our specialist clinic had increased rates of obstetric and neonatal complications compared with the general population, and were exposed to a cluster of risk factors. We report encouraging trends in antenatal attendance, gestational age at birth, and birth weights. Managing pregnant women with SMI will require a comprehensive approach aimed at early detection of obstetric complications and psychosocial difficulties, as well as neonatal monitoring. Optimising prepregnancy maternal health and welfare may also be of benefit.

Database: CINAHL

22. High lifelong relapse rate of psychiatric disorders among women with postpartum psychosis.

Author(s): Nager, Anna; Szulkin, Robert; Johansson, Sven-Erik; Johansson, Leena-Maria; Sundquist, Kristina

Source: Nordic journal of psychiatry; Feb 2013; vol. 67 (no. 1); p. 53-58

Publication Date: Feb 2013

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

PubMedID: 22563736

Abstract:BACKGROUNDThe relapse rate for psychiatric disorders after postpartum psychosis is high. Apart from subsequent puerperal periods, previous studies have not examined when relapses in psychiatric disorders occur. In addition, little is known about the impact of certain individual factors on the risk of non-puerperal readmission among women with previous postpartum psychosis.AIMSThe first aim was to examine the association between non-puerperal readmission due to psychiatric disorders and years of follow-up (in total, 30 years) in women with postpartum psychosis. The second aim was to examine the impact of age, type of psychosis, previous hospitalization for psychiatric disorders and level of education on the risk of non-puerperal readmission due to psychiatric disorders.METHODSAll Swedish women aged 20-44 with postpartum psychosis (n =3140) were followed between 1975 and 2004 for non-puerperal readmission due to psychiatric disorders. A Cox frailty regression model was used to estimate hazard ratios for non-puerperal readmission.RESULTSThe risk of non-puerperal readmission, although gradually decreasing with time, remained high many years after the postpartum psychosis. The risk of non-puerperal readmission was significantly higher among women with schizophrenia, lower levels of education and previous psychiatric hospitalization.CONCLUSIONSPostpartum psychosis is often part of a lifelong recurrent psychiatric disorder. Women with schizophrenia, lower levels of education and hospitalization due to a psychiatric disorder prior to postpartum psychosis have a higher risk of non-puerperal readmission.CLINICAL IMPLICATIONSThe findings constitute important knowledge for all healthcare workers encountering women with a previous postpartum psychosis.

Database: Medline

23. Clinical interventions for women with schizophrenia: Pregnancy

Author(s): Seeman, M. V.

Source: Acta Psychiatrica Scandinavica; Jan 2013; vol. 127 (no. 1); p. 12-22

Publication Date: Jan 2013

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

PubMedID: 22715925

Available at Acta psychiatrica Scandinavica - from Wiley Online Library

Available at Acta psychiatrica Scandinavica - from EBSCO (Psychology and Behavioral Sciences Collection)

Abstract: Objective: A comprehensive treatment program for schizophrenia needs to include services to women of childbearing age that address contraception, pregnancy, and postpartum issues, as well as safe and effective parenting. To update knowledge in these areas, a summary of the recent qualitative and quantitative literature was undertaken. Method: The search terms 'sexuality,' 'contraception,' 'pregnancy,' 'postpartum,' 'custody,' and 'parenting' were entered into PubMed, PsycINFO, and SOCINDEX along with the terms 'schizophrenia' and 'antipsychotic.' Publications in English for all years subsequent to 2000 were retrieved and their reference lists further searched in an attempt to arrive at a distillation of useful clinical recommendations. Results: The main recommendations to care providers are as follows: take a sexual history and initiate discussion about intimate relationships and contraception with all women diagnosed with schizophrenia. During pregnancy, adjust antipsychotic dose to clinical status, link the patient with prenatal care services, and help her prepare for childbirth. There are pros and cons to breastfeeding while on medication, and these need thorough discussion. During the postpartum period, mental health home visits should be provided. Parenting support is critical. Conclusion: The comprehensive treatment of schizophrenia in women means remembering that all women of childbearing age are potential new mothers. (PsycINFO Database Record (c) 2016 APA, all rights reserved) (Source: journal abstract)

Database: PsycINFO

24. Prior psychiatric inpatient care and risk of cesarean sections: A registry study

Author(s): Wangel, Anne-Marie; Molin, Johan; Moghaddassi, Mahnaz; Östman, Margareta

Source: Journal of Psychosomatic Obstetrics & Gynecology; Dec 2011; vol. 32 (no. 4); p. 189-197

Publication Date: Dec 2011

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

PubMedID: 22040006

Available at Journal of psychosomatic obstetrics and gynaecology - from EBSCO (Psychology and Behavioral Sciences Collection)

Abstract: This study of 17,443 childbearing women, investigated the relationship between hospital admissions 5 years prior to index birth, type of mental disorders and risk factors for mode of delivery. Hospital based electronic perinatal medical records between 2001 and 2006, were linked with the Swedish National Inpatient Care Registry 1996–2006. Of all the women, 39.3% had had inpatient care prior to index birth (27.3% had had obstetric, 10.1% somatic, and 1.9% psychiatric inpatient care). Diagnoses of mental disorders at psychiatric admission (n = 333) were categorized into five groups: personality/behavioral/ unspecified disorder (30.9%), affective disorders and 'suicide attempt' (28.9%), neurotic/somatoform disorders (18.9%), substance use (17.1%) and schizophrenia (4.2%). Women with history of psychiatric care were more often smokers, below age 24 and single ($p < 0.001$, respectively), had more markers of mental ill-health in pregnancy records ($p \leq 0.001$), compared to women without such previous care, and fewer were nulliparous ($p < 0.001$).

The results show that women with prior psychiatric inpatient care and those with identified mental ill-health in pregnancy records, were associated with increased adjusted risks of cesarean sections. Identifying a woman's mental health status in pregnancy may predict and prevent emergency cesarean section. (PsycINFO Database Record (c) 2016 APA, all rights reserved) (Source: journal abstract)

Database: PsycINFO

25. Pregnancy and postpartum specifics in women with schizophrenia: a meta-study.

Author(s): Matevosyan, Naira Roland

Source: Archives of gynecology and obstetrics; Feb 2011; vol. 283 (no. 2); p. 141-147

Publication Date: Feb 2011

Publication Type(s): Meta-analysis Journal Article

PubMedID: 20931211

Available at Archives of gynecology and obstetrics - from SpringerLink - Medicine

Abstract:OBJECTIVEThis meta-study intends to elucidate schizophrenia-pregnancy inferences.METHODSA total of 63 quasi-randomized, case-control, linkage studies on outcomes of singleton pregnancies in women with schizophrenia are identified through PubMed, ACOG, and SCOPUS. A sample of 216 pregnant and puerperal women with schizophrenia, allocated from studies of level I-IIA evidence, is compared with a sample of 487 births to unaffected women. Calculations use births as unit of analysis. Poisson regression model is used in exchangeable correlation structure.RESULTSOlder age (2.13), excessive smoking (1.85) and less antenatal care (1.92) in women with schizophrenia determine high risk for prematurity (2.08), including miscarriages (2.04) and preterm birth (1.98). Neonates to mothers with schizophrenia are profiled with twice likelihood of low Apgar scores (2.22), intrauterine growth retardation (2.16), and congenital defects (2.1). Poor maternal-fetal attachment and preoccupation about fetus are related to negative symptoms of schizophrenia (-0.518), length of antipsychotic treatment (-0.304) and are not associated with maternal age (0.216). Postpartum period is eventful with psychotic relapse (7.86), and parenting difficulties (11.2).CONCLUSIONSAfter adjusting for age, parity, unhealthy behaviors, length of antipsychotic treatment, and maternal-fetal attachment, maternal schizophrenia remains predictive to prematurity and postpartum psychosis.

Database: Medline

26. Schizophrenia in women.

Author(s): Tormoehlen K; Lessick M

Source: Nursing for Women's Health; Dec 2010; vol. 14 (no. 6); p. 482-495

Publication Date: Dec 2010

Publication Type(s): Academic Journal

Database: CINAHL

27. Managing pregnant women with serious mental illness: Using the Edinburgh Postnatal Depression Scale as a marker of anxiety and depressive symptoms

Author(s): Nguyen, Thinh N.; Faulkner, Deb; Allen, Suzanna; Hauck, Yvonne L.; Frayne, Jacqueline; Rock, Daniel; Rampono, Jonathan

Source: Australian and New Zealand Journal of Psychiatry; Nov 2010; vol. 44 (no. 11); p. 1036-1042

Publication Date: Nov 2010

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

PubMedID: 21034187

Available at The Australian and New Zealand journal of psychiatry - from EBSCO (Psychology and Behavioral Sciences Collection)

Abstract: Objective: To examine the course of depressive and anxiety symptoms using serial measurements of the Edinburgh Postnatal Depression Scale (EPDS) in pregnant women with serious mental illness (SMI) attending a specialist multi-disciplinary antenatal clinic in Perth, Western Australia. Method: A retrospective review of case notes was undertaken for 48 Western Australian pregnant women with schizophrenia and related psychoses and bipolar affective disorders who attended the Childbirth and Mental Illness (CAMI) antenatal clinic between December 2007 and November 2009. Of these patients, 27 completed the EPDS at booking (first appointment) and at 32 weeks gestation. Additional variables collected were demographic data, gestation at booking, and attendance rates for these 27 women, and for comparison another 21 women who did not complete the EPDS for one or both screening periods. Results: Mean total EPDS score decreased from 12.2 (SD 7.6) at booking to 8.5 (SD 6.4) at 32 weeks gestation (p = 0.007). Overall mean attendance rates and number of appointments were similar to the non-SMI population and in keeping with standard guidelines. Conclusions: We speculate from these preliminary findings that being managed by a consistent small multi-disciplinary team and knowing that they will be supported throughout their pregnancy could lead to improvement of anxiety and depressive symptoms in pregnant women with SMI, and has the potential to increase their attendance for antenatal care. (PsycINFO Database Record (c) 2016 APA, all rights reserved) (Source: journal abstract)

Database: PsycINFO

28. Bipolar disorder and pregnancy: Maintaining psychiatric stability in the real world of obstetric and psychiatric complications

Author(s): Burt V.K.; Caryn B.; Rosenstein W.S.; Altshuler L.L.

Source: American Journal of Psychiatry; Aug 2010; vol. 167 (no. 8); p. 892-897

Publication Date: Aug 2010

Publication Type(s): Conference Paper

PubMedID: 20693466

Available at The American journal of psychiatry - from Free Medical Journals . com

Available at The American journal of psychiatry - from Unpaywall

Abstract: This article describes complex, real-life issues faced by a woman with bipolar I disorder who wished to bear a healthy child while remaining psychiatrically well. The therapeutic issues include balancing treatment decisions that affect fetal and maternal risks. The authors address the importance of carefully considering the patient's history of response to medications when evaluating risks to maternal and fetal health. They discuss the role of the psychiatrist as a part of the treatment team faced with unpredictable but not unexpected complexities, such as miscarriage, abnormal or questionable prenatal screening tests, gestational diabetes, and the emergence of fetal decelerations, preterm labor, and psychiatric decompensation. The article presents and evaluates treatment decisions made in the setting of multiple obstetric and psychiatric complications that do not clearly fit published algorithms. The importance of incorporating family and social supports as an integral part of the treatment plan is emphasized.

Database: EMBASE

29. Ethical issues in managing the pregnancies of patients with schizophrenia

Author(s): Coverdale J.H.; McCullough L.B.; Chervenak F.A.

Source: Current Women's Health Reviews; Feb 2010; vol. 6 (no. 1); p. 63-67

Publication Date: Feb 2010

Publication Type(s): Review

Abstract: Objective: This paper identifies factors that contribute to the vulnerability of pregnant patients with schizophrenia and discusses the ethical issues in preventing and terminating pregnancies, managing labor and delivery, and treating psychosis during pregnancy. Method(s): PubMed and PsychINFO databases were searched using combinations of search terms including ethics, pregnancy, perinatal period and schizophrenia for relevant articles. In addition, an ethical framework was developed that was based on professional virtues, ethical principles of respect for autonomy and beneficence, the ethical concept of fetus as patient, and assisted and surrogate decision-making. Result(s): The processes of assisted decision-making constitute key components of the ethical framework and of professional responses to impairment in autonomy. These processes, which include education, skill training in problemsolving strategies, and treatment of psychosis and related conditions help women to regain capacity and to make prudent decisions based on their own long-standing values and beliefs. Psychiatry, family planning and sexual health services are integrated and coordinated to provide the requisite assessment, monitoring and protection of patients. Conclusion(s): Implementation of these recommendations should reduce the vulnerability of pregnant patients with schizophrenia and protect them from unwanted pregnancies and adverse pregnancy outcomes. © 2010 Bentham Science Publishers Ltd.

Database: EMBASE

30. Pregnancy outcome of patients with schizophrenia.

Author(s): Hizkiyahu, Ranit; Levy, Amalia; Sheiner, Eyal

Source: American journal of perinatology; Jan 2010; vol. 27 (no. 1); p. 19-23

Publication Date: Jan 2010

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

PubMedID: 19565434

Abstract: We sought to identify whether schizophrenia during pregnancy is associated with adverse perinatal outcomes. A population-based study comparing women with and without schizophrenia and schizoaffective disorders was performed. Stratified analysis using multiple logistic regression models was performed to control for confounders. During the study period, there were 186,554 deliveries, of which 97 occurred in patients with schizophrenia and schizoaffective disorders. The schizophrenic patients were significantly older (mean age 30.6 versus 28.6, P = 0.001), with higher prevalence of diabetes mellitus as compared with the comparison group (13.4% versus 6.7%, P = 0.009). The need for induction and augmentation of delivery, congenital malformations, and low birth weight (<2500 g) were significantly increased among schizophrenic patients. No significant differences were noted between the groups regarding labor complications such as cesarean delivery (16.5% versus 13.2%, P = 0.337) and placenta previa and placental abruption (1% versus 4%, P = 0.333 and 1% versus 0.7%, P = 0.51, respectively). Using a multivariable logistic regression model, schizophrenia and schizoaffective disorders during pregnancy were independent risk factors for congenital malformations (odds ratio 2.1; 95% confidence interval, 1.1 to 3.9, P = 0.027). Schizophrenia and schizoaffective disorders are independent risk factors for congenital malformations.

Database: Medline

31. Maternal schizophrenia and pregnancy outcome: Does the use of antipsychotics make a difference?

Author(s): Lin H.-C.; Chen I.-J.; Chen Y.-H.; Lee H.-C.; Wu F.-J.

Source: Schizophrenia Research; Jan 2010; vol. 116 (no. 1); p. 55-60

Publication Date: Jan 2010

Publication Type(s): Article

PubMedID: 19896335

Abstract: Objective: This study compared the risk of adverse pregnancy outcome-including preterm births, low birth weight (LBW), large-gestational-age (LGA), and small-gestational-age (SGA)-among mothers with schizophrenia receiving typical, atypical, and no antipsychotics during pregnancy. They were all compared with control subjects. Method(s): We used population-based data from the Taiwan National Health Insurance Research Database and birth certificate registry covering the years 2001 to 2003. In total, 696 mothers with schizophrenia and 3480 matched unaffected mothers were included for analysis. After adjusting for characteristics of mother, father, and infants, multivariate logistic regression analyses were performed to examine the risk of LBW, preterm gestation, SGA, and LGA, comparing mothers with schizophrenia and unaffected mothers. Result(s): After adjusting for potential confounders, the odds of LBW and SGA for unaffected mothers respectively were 0.72 (95% CI = 0.50-0.88) and 0.81 (95% CI = 0.64-0.92) times those of mothers with schizophrenia who had not receiving antipsychotics during pregnancy. There was no significant difference in the risk of LBW, preterm births, LGA, and SGA babies compared to mothers with schizophrenia receiving atypical antipsychotics during pregnancy and those not receiving antipsychotics. However, mothers with schizophrenia receiving typical antipsychotics during pregnancy had higher odds of preterm

birth (OR = 2.46, 95% CI = 1.50-4.11) compared to those not receiving antipsychotics. Conclusion(s): The data suggest that the risks for LBW and SGA among mothers with schizophrenia are not affected by antipsychotic use. Women who receive treatment with typical antipsychotics during pregnancy are at slightly higher risk of preterm birth.

Database: EMBASE

32. Exploring the role of reproductive pathology in the etiology of schizophrenia: What happens when mothers with schizophrenia give birth?

Author(s): Morgan, Vera A.; Jablensky, Assen V.

Source: Directions in Psychiatry; 2006; vol. 26 (no. 1); p. 1-15

Publication Date: 2006

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

Abstract: This lesson describes a study designed to ascertain the risk for complications during pregnancy, labor and delivery, and neonatal period in a population-based cohort of women with schizophrenia and affective psychoses. Record linkage across mental health and midwives' registers was used to study reproductive pathology and early offspring outcomes for all 1831 women on the mental health register with a diagnosis of schizophrenia (n=382) or affective psychosis (n=1449) who gave birth between 1980 and 1992 and had no psychiatric contacts recorded on the mental health register. In addition to using individual complications recorded prospectively on the midwives' database, obstetric complications were scored using the McNeil-Sjöström scale. Odds ratios were calculated for specific reproductive events. Both women with schizophrenia and those with an affective psychosis had an increased risk for complications during pregnancy and the neonatal period. However, only women with schizophrenia were significantly more likely to have placental abruption, to give birth to infants in the lowest weight/growth population decile, and to have children with cardiovascular and minor physical anomalies. The risk for these obstetric complications that were specific to schizophrenia showed no pre-onset/post-onset differences. There appears to be a preexisting susceptibility to schizophrenia that may involve both genetic and environmental components. However, while genetic liability and gene-environment interactions may account for some outcomes, maternal risk factors, as well as biological and behavioral concomitants of severe mental illness, appear to be major determinants of the increase in reproductive pathology in this cohort. Risk reduction in these vulnerable groups may be achievable through antenatal and postnatal interventions. (PsycINFO Database Record (c) 2016 APA, all rights reserved) (Source: journal abstract)

Database: PsycINFO

33. Pregnancy, delivery, and neonatal complications in a population cohort of women with schizophrenia and major affective disorders.

Author(s): Jablensky, Assen V; Morgan, Vera; Zubrick, Stephen R; Bower, Carol; Yellachich, Li-Anne

Source: The American journal of psychiatry; Jan 2005; vol. 162 (no. 1); p. 79-91

Publication Date: Jan 2005

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

PubMedID: 15625205

Abstract:OBJECTIVEThis study ascertained the incidence of complications during pregnancy, labor, and delivery and the neonatal characteristics of infants born to women with schizophrenia, bipolar disorder, or major depression in a population-based cohort.METHODBased on records linkage across a psychiatric case register and prospectively recorded obstetric data, the study comprised women with schizophrenia or major affective disorders who had given birth to 3,174 children during 1980-1992 in Western Australia. A comparison sample of 3,129 births to women without a psychiatric diagnosis was randomly selected from women giving birth during 1980-1992. Complications were scored with the McNeil-Sjöström Scale. Odds ratios were calculated for specific reproductive events.RESULTSBoth schizophrenic and affective disorder patients had increased risks of pregnancy, birth, and neonatal complications, including placental abnormalities, antepartum hemorrhages, and fetal distress. Women with schizophrenia were significantly more likely to have placental abruption, to give birth to infants in the lowest weight/growth population decile, and to have children with cardiovascular congenital anomalies. Neonatal complications were significantly more likely to occur in winter; low birth weight peaked in spring. Complications other than low birth weight and congenital anomalies were higher in pregnancies after psychiatric illness than in pregnancies preceding the diagnosis.CONCLUSIONSWhile genetic liability and gene-environment interactions may account for some outcomes, maternal risk factors and biological and behavioral concomitants of severe mental illness appear to be major determinants of increases in reproductive pathology in this cohort. Risk reduction in these vulnerable groups may be achievable through antenatal and postnatal interventions.

Database: Medline

34. Pregnancy and birth complications in patients with schizophrenia in Trinidad and London.

Author(s): Bhugra, D; Hutchinson, G; Hilwig, M; Takei, N; Fahy, T A; Neehall, J; Murray, R M

Source: The West Indian medical journal; Jun 2003; vol. 52 (no. 2); p. 124-126

Publication Date: Jun 2003

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

PubMedID: 12974062

Abstract: It has been shown that an excess of pregnancy and birth complications (PBCs) does not contribute to the excess rates of schizophrenia reported for the population of Caribbean origin in Britain compared with the native Caucasian British population. We therefore attempted to compare the rate of PBCs between a sample of schizophrenics in Britain with that of a sample from Trinidad where some of the Caribbean migrants to Britain originated. First contact patients with schizophrenia according to the CATEGO system diagnosis were identified in Trinidad and London. Their mothers, where available, were interviewed using the Lewis-Murray scale for pregnancy and birth complications. Data from Trinidad and Tobago concerning 56 patients were compared with those of the Caucasian (n = 61) and African-Caribbean (n = 50) patients in London. The rate of PBCs was similar for the Caucasian British patients (24.6%) and the patients in Trinidad and Tobago (21.7%). The rates were lowest in the African-Caribbean patients in London (14.0%), though this difference was not statistically significant. These findings suggest that pregnancy and birth complications are a risk factor for a substantial minority of patients with schizophrenia in Trinidad and London. It also confirms that the excess rates of schizophrenia reported for the Caribbean population in Britain are not due to these complications.

Database: Medline

35. Motherhood and schizophrenic illnesses: A review of the literature

Author(s): Bosanac, Peter; Buist, Anne; Burrows, Graham

Source: Australian and New Zealand Journal of Psychiatry; Feb 2003; vol. 37 (no. 1); p. 24-30

Publication Date: Feb 2003

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

PubMedID: 12534653

Abstract: Provides an overview of the current knowledge on the impact of motherhood on women with schizophrenia and schizoaffective disorder, based on a complete MEDLINE and PsycLIT (1971 to current) search. Research has been limited by a number of methodological constraints, which included: a paucity of prospective studies with initial, antenatal recruitment; variable definitions of the length of the puerperium; significant changes in psychiatric classification; the heterogeneity of postpartum psychotic disorders, with the majority being mood or schizoaffective disorder rather than schizophrenia; selection biases inherent in studying mother-baby unit inpatients; difficulties in life events research in general, such as its retrospective nature and confounding, illness factors; and the specificity versus non-specificity of childbirth as a unique or discrete life event. Further study is required to explore: the impact of child care, parenting and having a partner on the course of women with schizophrenic and schizoaffective disorders during the first postpartum year; whether women with postpartum relapses of these mental illnesses are likely to have slower recoveries than those women with the same diagnoses but without young children; and protective factors against postpartum relapse. (PsycINFO Database Record (c) 2016 APA, all rights reserved)

Database: PsycINFO

36. 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): Journal Peer Reviewed Journal Journal Article

PubMedID: 12409162

Abstract: Schizophrenia in the mother may imply an increased risk of adverse pregnancy outcome. This study examined non-optimal pregnancy outcome using data from a population-based cohort, controlling for covariates known to influence fetal growth, and performed separate analyses of women diagnosed before childbirth and women hospitalized for schizophrenia during pregnancy. The study sample comprised 2,096 births by 1,438 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. The authors 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. Controlling for a high incidence of smoking during pregnancy among schizophrenic women (51 % vs 24% in the normal population) and other maternal factors 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. (PsycINFO Database Record (c) 2017 APA, all rights reserved)

Database: PsycINFO

37. Obstetric complications in women with schizophrenia.

Author(s): Bennedsen, B E; Mortensen, P B; Olesen, A V; Henriksen, T B; Frydenberg, M

Source: Schizophrenia research; Mar 2001; vol. 47 (no. 2-3); p. 167-175

Publication Date: Mar 2001

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

PubMedID: 11278134

Abstract: It is not known whether schizophrenic women have increased incidence of complications during pregnancy and delivery. Data from the Danish Medical Birth Register were used to compare 2212 births to 1537 schizophrenic women in Denmark with a random sample of all deliveries in Denmark during 1973-1993 (122931 births to 72742 women). The schizophrenic women had fewer antenatal care visits. They were at lower risk of pre-eclampsia, but tended to have lower Apgar scores. There were no other differences in the incidence of specific complications such as placenta previa, placental abruption, and abnormal fetal presentation. Schizophrenic women were at increased risk of interventions such as Cesarean section, vaginal assisted delivery, amniotomy, and pharmacological stimulation of labor. There were no important differences between the deliveries to schizophrenic women who gave birth before and after their first admission to a psychiatric department. These results show no evidence that schizophrenic women have a greater frequency of specific obstetric complications than non-schizophrenic women. Nevertheless, they are at increased risk for interventions during delivery.

Database: Medline

38. Preterm birth and intra-uterine growth retardation among children of women with schizophrenia.

Author(s): Bennedsen, B E; Mortensen, P B; Olesen, A V; Henriksen, T B

Source: The British journal of psychiatry : the journal of mental science; Sep 1999; vol. 175 ; p. 239-245

Publication Date: Sep 1999

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

PubMedID: 10645325

Available at The British journal of psychiatry : the journal of mental science - from Ovid (Journals @ Ovid) - London Health Libraries

Abstract:BACKGROUNDThere is conflicting evidence about the frequency of adverse pregnancy outcomes among women with schizophrenia.AIMSTo investigate the risk of preterm birth, low birth weight and intra-uterine growth retardation among women with schizophrenia.METHODA total of 2212 births to 1537 women with schizophrenia in Denmark were compared with a random sample of all deliveries in Denmark in 1973-1993 (122,931 births to 72,742 women).RESULTSThe children of women with schizophrenia were at increased risk of preterm delivery (relative risk = 1.46, 95% CI = 1.19-1.79), low birth weight (relative risk = 1.57, 95% CI = 1.36-1.82) and small for gestational age (relative risk = 1.34, 95% CI = 1.17-1.53).CONCLUSIONSWomen with schizophrenia are at increased risk of adverse pregnancy outcome. This may be associated with an increased mortality and general morbidity and risk of schizophrenia in their children.

Database: Medline

39. Impact of childbirth on a series of schizophrenic mothers: A comment on the possible influence of oestrogen on schizophrenia

Author(s): Davies, Anthony; McIvor, Ronan J.; Kumar, R. Channi

Source: Schizophrenia Research; Jul 1995; vol. 16 (no. 1); p. 25-31

Publication Date: Jul 1995

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

PubMedID: 7547642

Abstract: Retrospectively identified 45 patients in a Mother–Baby Unit with a diagnosis of schizophrenia. Demographic and clinical data were noted and each file was rated using a diagnostic program. Two mutually exclusive groups were derived: a narrow group (NG) of Ss satisfying criteria for schizophrenia by J. P. Feighner et al (1972) and a broad group (BG) of those meeting the 10th revision of International Classification of Diseases (ICD) but not the Feighner et al criteria. 43% of the BG experienced an acute illness episode after delivery compared with none of the NG, a contrast not attributable to differences in clinical state or treatment during pregnancy. Thus, childbirth may exert a differential effect on the course of illness in severe and more benign forms of schizophrenia and more severe schizophrenic illnesses may not be influenced by changes associated with childbirth, such as the fall in oestrogen levels. (PsycINFO Database Record (c) 2017 APA, all rights reserved)

Database: PsycINFO

40. Obstetric complications and schizophrenia. A case-control study.

Author(s): Günther-Genta, F; Bovet, P; Hohlfeld, P

Source: The British journal of psychiatry : the journal of mental science; Feb 1994; vol. 164 (no. 2); p. 165-170

Publication Date: Feb 1994

Publication Type(s): Journal Article

PubMedID: 8173820

Available at The British journal of psychiatry : the journal of mental science - from Ovid (Journals @ Ovid) - London Health Libraries

Abstract: Schizophrenics have been repeatedly found to experience more obstetric complications (OCs) at birth. The meaning of such a finding is debated, and the aim of this study is to contribute to the understanding of OCs' aetiological role in schizophrenia. We compared a group of schizophrenic patients with their siblings and controls, on the basis of obstetric files stemming from the same University Hospital Maternity Ward. Schizophrenic patients had more frequent umbilical cord complications and atypical presentations, as well as higher scores on a scale measuring OCs linked to possible neonatal asphyxia.

Database: Medline

41. Treatment and outcomes of psychotic patients during pregnancy and childbirth.

Author(s): Spielvogel, A; Wile, J

Source: Birth (Berkeley, Calif.); Sep 1992; vol. 19 (no. 3); p. 131-137

Publication Date: Sep 1992

Publication Type(s): Case Reports Journal Article

PubMedID: 1388439

Abstract: This study examined whether particular groups of psychotic women are likely to present management problems during pregnancy and childbirth. The pregnancy courses and outcomes of 22 psychiatric inpatients were reviewed. Schizophrenic women with delusions or psychotic denial about the pregnancy were significantly less likely to detect labor than were nondelusional women. Ability to detect signs of labor and cooperate with labor instructions was significantly more likely in women with bipolar affective disorders than in those with schizophrenic disorders, and was also more likely in those women with severe personality disorders and substance abuse histories. The total patient cohort underwent significantly more cesarean sections than their nonpsychiatric counterparts who delivered at the same hospital. These findings suggest that psychotic women are at high risk for the development of pregnancy and birth complications.

Database: Medline

42. Contribution of psychological and social factors to psychotic and non-psychotic relapse after childbirth in women with previous histories of affective disorder.

Author(s): Marks, M N; Wieck, A; Checkley, S A; Kumar, R

Source: Journal of affective disorders; Apr 1992; vol. 24 (no. 4); p. 253-263

Publication Date: Apr 1992

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

PubMedID: 1578081

Abstract: Twenty-six women with a history of bipolar or schizoaffective disorder, 17 women with histories of major depressive disorder and 45 control women without any previous psychiatric history were assessed in the 9th month of pregnancy on selected psychosocial measures. No subject was a 'case' as defined by the Research Diagnostic Criteria (RDC) from this time until the delivery. Within 6 months postpartum, 22 (51%) of the women with histories of mental illness were categorised as having relapsed (RDC case). Twelve women developed a psychosis (mania, hypomania or schizomania) and these illnesses occurred only in women with histories of affective or schizoaffective psychosis whereas 10 other women who became depressed after delivery came equally from the women with histories of psychosis (N = 5) as from those with histories of major depression (N = 5). Three (7%) control women also developed postpartum non-psychotic depressive disorders. Multivariate analyses suggest that different psychosocial factors contribute to the recurrence of affective and schizoaffective psychosis after delivery as opposed to non-psychotic postpartum affective disorders. A non-psychotic illness was predicted by antenatal neuroticism and a severe life event before illness onset. A recurrence of psychosis postpartum was predicted by a history of mania, hypomania or schizomania, a more recent psychiatric admission and reported marital difficulties. In this sample of women, life stress led to postpartum depression irrespective of the subject's past history and the high rates of recurrence of affective or schizoaffective psychosis (47%) probably mainly reflected a pre-existing physiological or psychological vulnerability which may have been exacerbated by, or contributed to, marital difficulties.

Database: Medline

Strategy 810201

#	Database	Search term	Results
1	Medline	(schizophreni*).ti	77553
2	Medline	exp SCHIZOPHRENIA/	102850
3	Medline	(1 OR 2)	114424
4	Medline	(labor OR labour).ti	35747
5	Medline	exp "LABOR, OBSTETRIC"/	45643
6	Medline	(childbirth*).ti	5460
7	Medline	(4 OR 5 OR 6)	69918
8	Medline	(3 AND 7)	44
9	Medline	exp "OBSTETRIC LABOR COMPLICATIONS"/	67610
10	Medline	(3 AND 9)	193
11	Medline	exp "CESAREAN SECTION"/	44315
12	Medline	(cesarean* OR caesarean* OR "c section*").ti,ab	58832
13	Medline	(11 OR 12)	71692
14	Medline	(3 AND 13)	37
15	Medline	exp "SCHIZOPHRENIA SPECTRUM AND OTHER PSYCHOTIC DISORDERS"/	145196
16	Medline	(13 AND 15)	63
17	Medline	exp "PSYCHOTIC DISORDERS"/	51067
18	Medline	(7 AND 17)	70

19	Medline	(13 AND 17)	29
20	Medline	exp "MENTAL DISORDERS"/	1369449
21	Medline	(13 AND 20)	1167
22	Medline	(elective OR "on request").ti,ab	76689
23	Medline	(21 AND 22)	109
24	Medline	("on maternal request").ti,ab	181
25	Medline	(13 AND 20 AND 24)	9
26	Medline	("on demand").ti,ab	8616
27	Medline	(13 AND 20 AND 26)	1
28	Medline	("mode of delivery" OR "mode of birth").ti,ab	7010
29	Medline	(20 AND 28)	238
30	Medline	(relapse).ti,ab	117028
31	Medline	exp RECURRENCE/	180211
32	Medline	(30 OR 31)	273785
33	Medline	(29 AND 32)	4
34	Medline	(7 AND 20 AND 32)	21
35	PsycINFO	(schizophreni*).ti,ab	118240
36	PsycINFO	exp SCHIZOPHRENIA/	89662
37	PsycINFO	(35 OR 36)	122760
38	PsycINFO	exp "LABOR (CHILDBIRTH)"/	1313
39	PsycINFO	(childbirth OR labor OR labour).ti,ab	35774

40	PsycINFO	exp "CAESAREAN BIRTH"/	275
41	PsycINFO	(caesarean* OR cesarean* OR "c section*").ti,ab	1903
42	PsycINFO	(38 OR 39 OR 40 OR 41)	37100
43	PsycINFO	(37 AND 42)	273
44	PsycINFO	(40 OR 41)	1909
45	PsycINFO	exp "ACUTE PSYCHOSIS"/	2076
46	PsycINFO	exp PSYCHOSIS/	114885
47	PsycINFO	(44 AND 46)	24
48	PsycINFO	exp "MENTAL DISORDERS"/	840132
49	PsycINFO	(elective OR "on request").ti,ab	3450
50	PsycINFO	("on maternal request").ti,ab	22
51	PsycINFO	("on demand").ti,ab	1112
52	PsycINFO	(49 OR 50 OR 51)	4569
53	PsycINFO	(44 AND 48 AND 52)	29
54	EMBASE	(schizophreni*).ti,ab	156922
55	EMBASE	exp SCHIZOPHRENIA/	174947
56	EMBASE	(54 OR 55)	197668
57	EMBASE	exp LABOR/	34264
58	EMBASE	(56 AND 57)	34
59	EMBASE	exp "LABOR COMPLICATION"/	183671
60	EMBASE	(56 AND 59)	433
61	EMBASE	exp "CESAREAN SECTION"/	93221

62	EMBASE	(elective OR "on request").ti,ab	114165
63	EMBASE	("on maternal request").ti,ab	243
64	EMBASE	("on demand").ti,ab	12496
65	EMBASE	(62 OR 63 OR 64)	126636
66	EMBASE	(56 AND 61 AND 65)	5
67	EMBASE	*CHILDBIRTH/	5348
68	EMBASE	(56 AND 67)	48
69	EMBASE	*"PUERPERAL PSYCHOSIS"/	695
70	EMBASE	(56 AND 69)	108
71	EMBASE	exp PSYCHOSIS/	271812
72	EMBASE	(61 AND 65 AND 71)	17
73	EMBASE	exp "MENTAL DISEASE"/	2120262
74	EMBASE	(61 AND 65 AND 73)	279
76	EMBASE	("mode of delivery").ti,ab	11131
77	EMBASE	(56 AND 76)	11
78	Medline	("postpartum psychosis").ti,ab	284
79	Medline	(3 AND 78)	14
80	Medline	(relapse OR recurrence).ti,ab	382343
81	Medline	exp RECURRENCE/	180211
82	Medline	(80 OR 81)	500874
83	Medline	exp "POSTPARTUM PERIOD"/	63654
84	Medline	(3 AND 82 AND 83)	3

85	EMBASE	exp "MENTAL PATIENT"/	25576
86	EMBASE	(61 AND 85)	25
87	CINAHL	(schizophreni*).ti,ab	24048
88	CINAHL	exp SCHIZOPHRENIA/	22607
89	CINAHL	(87 OR 88)	29621
90	CINAHL	(pregnan* OR labor OR labour OR childbirth).ti,ab	147876
91	CINAHL	exp PREGNANCY/	190126
92	CINAHL	exp "DELIVERY, OBSTETRIC"/	12993
93	CINAHL	exp "CESAREAN SECTION"/	16917
94	CINAHL	exp "LABOR COMPLICATIONS"/	10711
95	CINAHL	(91 OR 92 OR 93 OR 94)	195501
96	CINAHL	(89 AND 95)	501