J Behav Health 2012; 1(4):260-268 *ISSN: 2146-8346*

GESDAV

Journal of Behavioral Health

available at www.scopemed.org

Original Research

Management of major depression in pregnancy: A comparison of approaches by psychiatrists and obstetricians and gynecologists

Shailesh Jain[1], Moss Hampton[2], Stephanie Caples[1], James Eldridge[3], Daniel Castracane[2]

[1] The Texas Tech Health Science Center at Permian Basin, Department of Psychiatry,
[2] The Texas Tech Health Science Center at Permian Basin, Department of Obstetrics and Gynecology,
[3] The University of Texas at Permian Basin, Department of Kinesiology,

Received: May 27, 2012

Accepted: September 08, 2012

Published Online: September 19, 2012

DOI: 10.5455/jbh.20120908033155

Corresponding Author:
Shailesh Jain ,
TTU-PB, Texas USA
bobby.jain@ttuhsc.ed

Key words: Pregnancy, Major Depression, Psychiatry, Obstetrics and Gynecology

Abstract

Topic: Management of Major Depression in Pregnancy: A Comparison of Approaches by academic Psychiatrists and Obstetricians and Gynecologists.
Purpose: Major Depression (MD) can complicate pregnancy outcome. To manage MD during pregnancy, the American College of Obstetricians and Gynecologists (ACOG) and the American Psychiatric Association (APA) have offered consensual recommendations. This study compares the approaches of academic physicians of these two specialties to manage MD during pregnancy.
Methods: A 10 minute survey that assessed individual and self-report practices about managing MD during pregnancy was developed and sent to major academic training programs across the US. Areas assessed include modalities of intervention during mild, moderate, and severe depression, preference for counseling, preference for antidepressant intervention, comparison of use of screening tools between the two specialties, choice of antidepressant and assessment of use of non-pharmacological interventions such as ECT, light therapy and use of alternative medicines such as the Omega three fatty acids. A total of 51 Obstetrics and gynecology training program directors and a total of 18 psychiatry training program directors responded by completing and mailing back the questionnaires.
Conclusions: We found that the academic Obstetricians and Gynecologists and the academic Psychiatrists differed in their approach to manage MD during pregnancy under similar circumstances. The two different approaches under similar conditions reflected the level of comfort in their respective practices.

INTRODUCTION

Pregnant adolescents and women commonly experience Major Depression (MD). The management of MD during pregnancy is complicated. Untreated maternal MD complicates pregnancy outcome and has both short and long-term ill effects on fetal development. Antidepressant exposure can be toxic to the fetus. Recently, the American College of Obstetricians and Gynecologists (ACOG) and the American Psychiatric Association (APA) have offered recommendations to manage MD during pregnancy. The report intends to help physicians and patients weigh the risks and benefits of various depression treatment alternatives during pregnancy (Grote, Bridge, Gavin, Melville, Iyengar, & Katon, 2010a). However, it remains to be determined if the recommendations have resulted in more standardized care for these patients.

Background

The mental health needs of pregnant adolescents and adult women are often overlooked (Misri, 2007). A meta-analysis reported a high prevalence rate of antenatal depression (12.7 %) (Grote, Bridge, Gavin, Melville, Iyengar, & Katon, 2010b) . Similarly,

systematic review of the literature suggests that 7.4 % of women experience major depressive episodes in their first trimester, 12.8% in second, and 12.0 % in the third trimester (Bennett, Einarson, Taddio, Koren, & Einarson, 2004). A study of 40 pregnant adolescent females (mean age 15.6 years) found prevalence of MD in the moderate range of 72 % as measured by the Edinburg Post-Partum Depression Scale (EPDS)(Score ≥7) and 56% as measured by Beck Depression Inventory (BDI) (score≥ 8) (Shanok & Miller, 2005).Other epidemiological studies have found similar high rates of depression in pregnant teens (Logsdon, Cross, Williams, & Simpson, 2004) (Quinlivan, Tan, Steele, & Black, 2004). Research from the past two decades has suggested possible links between antennal MD and adverse neonatal outcomes. (Bagner, Pettit, Lewinsohn, & Seeley, 2010; Grote, Bridge, Gavin, Melville, Iyengar, & Katon, 2010b; Marcus et al., 2011; Markus & Miller, 2009; Pinette & Wax, 2010; Setse et al., 2009; Van Dijk, Van Eijsden, Stronks, Gemke, & Vrijkotte, 2010). Untreated MD in pregnancy has been associated with an increased risk of intrauterine growth restriction, increased rates of Cesarean Section, and increased rate of admissions of the infant to the neonatal intensive care unit (Misri, 2007)(Grote, Bridge, Gavin, Melville, Iyengar, & Katon, 2010b) .

The American College of Obstetricians and Gynecologists (ACOG) finds insufficient evidence to support a firm recommendation for universal antepartum or post-partum screening for depression. However as depression screening has potential benefit, the ACOG suggests strong consideration for depression screening (American College of Obstetricians and Gynecologists Committee on Obstetric Practice, 2010). There are currently no recommendations for routine screenings for MD among pregnant adolescents (Misri, 2007) (Yonkers et al., 2009) . The American Psychiatric Association (APA) has no guidelines for the treatment of MD during pregnancy. As a result the discrepancy in approaches of psychiatrists and OBGYNs is expected.

Serotonin reuptake inhibitors (SSRIs) are the first line of treatment for pregnant women experiencing severe mood disorders (Grote, Bridge, Gavin, Melville, Iyengar, & Katon, 2010a). However, the US-Federal Drug Agency (FDA) has cautioned use of antidepressants in adolescents and young adults (source: http://www.fda.gov/Drugs/DrugSafety/InformationbyDrugClass/ucm096293.htm/ Accessed October 2011). Hence rate and efficacy of use of antidepressants in adolescent pregnancy with MD is unknown. Non-pharmacologic options are also available for mild to moderate depression. Psychotherapy, Electroconvulsive Therapy (ECT) (Anderson & Reti, 2009), Light therapy (Krzystanek & Krupka-Matuszczyk, 2006), and Omega 3 fatty acids (Gallagher, 2004) have also been studied in treating and managing depression among pregnant women. Studies about use of these modalities in adolescent females are scarce. Several scales have been developed and can be useful for identifying, assessing and monitoring the severity of the maternal MD (Matthey, Henshaw, Elliott, & Barnett, 2006a; Spitzer, Williams, Kroenke, Hornyak, & McMurray, 2000). Several options exist for management of MD during pregnancy.

Several studies have reported that Cognitive Behavioral Therapy (CBT) is as effective as medication in treating mild to moderate depression (Raudzus & Misri, 2009)(Coull & Morris, 2011; Hoifodt, Strom, Kolstrup, Eisemann, & Waterloo, 2011; Mergl et al., 2011). Although its effectiveness has been consistently documented in the literature, it's utilization in the treatment of maternal MD by OB/GYN physicians and psychiatrists are unknown. ECT is widely documented as effective treatment for severe depression. However, it's utilization among pregnant women raises special concerns and so the rates at which OB/GYNs and psychiatrists employ this technique in this population remains unknown. The efficacy of use of ECT in pregnant adolescents with MDD remains unknown.

Studies examining the effectiveness of light therapy have found that women treated with bright light therapy over a 3-5 week period report significant improvements in their symptoms (Grote, Bridge, Gavin, Melville, Iyengar, & Katon, 2010a). Literature results for Omega 3 fatty acids have been contradictory in nature (Gallagher, 2004). Some studies on the herbal supplement indicate significant efficacy in treating MD while others report no significance of the supplement as an intervention.

This is an exploratory study aimed to investigate the differences between academic OB/GYN physicians and academic Psychiatrists in the management of MD in pregnant adolescents and women. Specifically, we sought to assess the mode of interventions the academic OB/GYN and psychiatrists use to manage MD during adolescent and adult pregnancies. Additionally, we wanted to identify the rates of use for non-pharmacological interventions to treat depression during pregnancy in all ages by academic psychiatrists across the US. Understanding the treatment paradigms could lead to improved clinical outcomes for pregnant patients experiencing MD.

METHODS:

The Texas Tech University Health Science Center (TTUHSC) at the Permian Basin USA, departments of

OB/GYN and Psychiatry created anonymous questionnaires. These questionnaires queried the accredited program directors of both OB/GYN and Psychiatry residency training programs across the United States about how they managed MD in adolescents (age 13 years and above) and in adults . The 10 minute survey assessed individual and self-report practices about managing MD during pregnancy. Areas assessed included modalities of intervention during mild, moderate, and severe MD, preference for counseling, preference for antidepressant intervention, comparison of use of screening tools between the two specialties, choice of antidepressant and assessment of use of non-pharmacological interventions such as ECT, light therapy and alternative medicines such as the Omega three fatty acids. The specialties when encountering an adolescent or adult pregnant female with varied severity of MD. Responses were limited to the individual training program directors. Individual phone calls to the mailed program directors were made to increase the response rates. A total of 51 academic OB/GYN programs and a total of 18 academic psychiatry training programs responded by completing and mailing back the questionnaires a response rate of 55% and 40 % respectively.

The Texas Tech University Health Science Center Institutional Review Board approved all study procedures, and participants provided written informed release for anonymous and aggregate analysis and reporting of questionnaire data.

Analysis: Data for this study were analyzed using 2X2 X^2 techniques comparing group identification (OB/GYN and Psychiatrist) to response variables. All data were analyzed using SPSS version 15 software with an apriori significance level set at $p<0.05$.

RESULTS

Overall however, academic psychiatrists were more likely to prescribe antidepressant to pregnant adults and adolescents with clinical MDD than compared to academic OB/GYN physicians. When asked about the clinical practice for the use of antidepressants in adults and adolescents, 100% of psychiatrist approved of the practice compared to 80% of OB/GYN academic physicians .This difference was found to be statistically significant ($X^2 = 4.2$, $P = 0.04$).

For mild MD, more academic psychiatrists compared to academic OB/GYN physicians preferred counseling (72.2% versus 28.6%, $X^2= 12.296$, $P = 0.006$). More OB/GYN physicians preferred to prescribe antidepressants for mild MD compared to psychiatrists. However, the difference was not statistically significant (11.1% versus 1%, $X^2 = 3.55$, $P = 0.314$). Such difference in opinion was not seen amongst the two specialties with moderate MD ($X^2 = 0.00$, $P=1.0$). When MD was assessed as severe, fewer OB/GYN physicians compared to psychiatrists were in favor of just 'continuing to evaluate' but this did not reach statistical significance (17.1% versus 22.2%, $X^2 = 1.011$, $P = 0.799$). For severe MD, more OB/GYN's compared to psychiatrists were in favor of referral for counseling but the difference was not statistically significant (72.2% versus 44.4%, $X^2 = 5.19$, $P = 0.158$). The proportion of clinicians in favor of intervening with antidepressant medications with severe clinical MD for both specialties were similar (73.3% for OB/GYN versus 76.5% for psychiatrist, $X^2= 1.786$, $P = 0.618$). OB/GYN physicians were more likely to consult a psychiatrist or a psychologist when encountering severe depression during pregnancy (84.4%) than mild (0.03%) or moderate depression (37.8%).

Academic psychiatrists were more likely to initiate antidepressant medication based on the results of a depression inventory and clinical impression as opposed to just clinical impression alone. Hence, 38.9% of academic psychiatrist versus 32.6% of academic OB/GYN physicians relied on a combination of a depression inventory and clinical impression. The difference however was not statistically significant amongst the two specialties ($X^2 = 1.476$, $P = 0.688$). At the same time, 32.6% of academic OB/GYN respondents reported initiating antidepressant medication to pregnant depressed females on clinical impression only compared to 11.1% of academic psychiatrists. Again, the difference was not statistically significant ($X^2= 6.801$, $P = 0.079$). More academic OB/GYN physicians (58.8%) preferred having a psychiatric consultation for depressed pregnant women and adolescents before initiating antidepressants. When asked if they would prescribe antidepressant to a depressed and suicidal pregnant female irrespective of age, 58.1% of academic OB/GYN physicians compared to 72.2% of academic psychiatrist responded positive ($X^{2=}$ 5.1 4, $P = 0.162$). For both OB/GYN and psychiatrists, the choice of antidepressants were SSRIs (24.6%), followed by SNRIs (17.4%), tricyclic antidepressants (7.2%).

Overall, 52.2% of OB/GYN respondents reported using the formal screening tool for depression in pregnant females (women and adolescents). The most common reasons for use of such screening tools of depression during pregnancy were: current clinical history of MD (77.8%), previous history suggestive of MD (55.6%) and history of prior use of antidepressant medications (33.3%).

Significantly, only 14.5% of psychiatrists favored ECT treatment for severe MD during pregnancy. Only 4.3% and 1.4% of surveyed academic psychiatrists approved

of ECT treatment for mild and moderate MD, respectively.

For Light Therapy, only 1.4% of academic psychiatrists approved treatment of MD during pregnancy irrespective of its severity.

For Omega 3 fatty acids, 4.3% of academic psychiatrist responding to the survey approved of treatment of MD during pregnancy irrespective of severity of depression.

DISCUSSIONS

Academic OB/GYN physicians compared to academic psychiatrists were more likely to use medications in pregnant mother (adults and adolescents) with 'mild' MD. With increasing severity of MD, the psychiatrists are more likely to intervene with psychotherapy first and use medications only if depression continues to deteriorate. With moderate to severe maternal depression, physicians from both specialties were equally likely to intervene rather than display watchful expectancy. When suicidal thoughts are present, the psychiatrists were more likely to start antidepressants. This disparity in approach to treat mild depression with supportive care during pregnancy may reflect the OB/GYN physician's lack of comfort or time to engage in psychotherapy.

Majority of psychiatrists and OB/GYN elected to intervene with mild to moderate maternal MD. This is encouraging as untreated maternal depression is linked to increasing adverse pregnancy outcomes. These include premature birth, low birth weight infants, fetal growth check, and postnatal complications (Yonkers et al., 2009) . The maternal MD during pregnancy has been linked to increased life stresses, decrease social support, more maternal weight gain, smoking and substance abuse (Grote, Bridge, Gavin, Melville, Iyengar, & Katon, 2010a). Infants born to untreated depressed mothers cry more and can be difficult to console (Field, Diego, & Hernandez-Reif, 2006). Longitudinal studies indicate these infants are prone to suicidal behavior, conduct problems, emotional instability and need creative psychiatric care during the latter part of their lives (Deave, Heron, Evans, & Emond, 2008) .

Previous studies have indicated that only few OB/GYN screened for MD (44%) (LaRocco-Cockburn, Melville, Bell, & Katon, 2003). In a survey of assessing clinical diagnostic skills of OB/GYN fellows in training, it was found that younger OB/GYN were more likely to prescribe appropriate MDD medication when indicated, whereas older OB/GYNs preferred to manage without medication or consult with a mental health professional. Treatment with antidepressants was reported as a course of action twice as often as referral to a mental health professional. The authors concluded that there is a need for greater awareness of the efficacy of psychotherapy, particularly cognitive-behavioral therapy, in the treatment of MD (Coleman, Victoria H.Carter, Michele M.Morgan,Maria A.Schulkin, Jay, 2008).

The use of medications to treat MD during pregnancy is controversial particularly during adolescence. The guidelines from the American College of Obstetrics and Gynecologists (Yonkers et al., 2009) for the use of antidepressants during pregnancy has inferred that SSRI exposure during early pregnancy provided conflicting data on the risk for congenital malformation. However the guidelines favor SSRIs as the first choice of antidepressants. These guidelines are restricted to adult women only. The American College of Obstetrics and Gynecologists offers no guidelines for use of antidepressants in pregnancy adolescents with MDD.

Though it is likely that antidepressants may result in increased suicidal ideations in certain vulnerable populations (Morrato et al., 2008), specifically in the early course of treatment, there is no conclusive evidence that links antidepressants to completed suicide directly (Hall & Lucke, 2006; Hall & Lucke, 2006) . As a consequence to the FDA warning ,there has been a decrease in antidepressant prescriptions for children and adolescents, that has resulted in increased rate of suicidality in children and adolescents (Centers for Disease Control and Prevention, 2007) . The FDA recommends that children and adolescents have clinic visits once during the first month of initiating antidepressant treatment, every two weeks during the second month and a visit at three months (Morrato et al., 2008). This was later modified and made weekly clinic visits in person less stringent. Additional information on FDA recommendation on use of antidepressants in children, adolescents and young adults can be obtained at www.fda.gov/cder/drug/antidepressants/default.htm. (Accessed June 2011)

Psychotherapy is a recommended adjunct for mild to moderate MD. An assessment of the potential risk of SSRI use during pregnancy should be considered against the risk of relapse or worsening of untreated depression. Significant risk factors for relapse of MD during pregnancy include, long history of depressive illness and four or more episodes of major depressive episodes (Yonkers et al., 2009). However, the absolute risk is small and SSRIs are not considered as major teratogens. Some reports link late exposure to SSRIs during pregnancy with transient perinatal complications (jitteriness, mild respiratory distress, transient tick of the newborn, weak cry) (Chambers, Johnson, Dick, Felix, & Jones, 1996; Costei, Kozer, Ho, Ito, & Koren,

2002) . Such associated complications are found to be minimal (Louik, Lin, Werler, Hernandez-Diaz, & Mitchell, 2007) (Alwan et al., 2007). The risk of congenital malformation due to tricyclic antidepressants as noted in earlier studies have not been confirmed in subsequent studies (Altshuler et al., 1996; Kallen, 2004) (Cole et al., 2007). The limited data associated with the use of atypical antidepressants (bupropion, duloxetine, mirtazepine, venlafaxine) during pregnancy do not indicate any increased risk of fetal anomalies or adverse pregnancy outcomes (Cole et al., 2007; Lennestal & Kallen, 2007).

The Expert Consensus Guidelines Series regarding treating first or recurrent episode for mild MD during first trimester of pregnancy recommends using psychotherapy alone as first line of intervention. In contrast, for a severe MD, the treatment of choice is combining medication and psychotherapy, whether first episode or recurrent (Altshuler et al., 2001). Psychotherapy alone was a feasible second-line option only for a first lifetime episode. In a patient who has a history of severe, recurrent episodes of depression but who is only showing early signs of a relapse, the experts had no first-line consensus, but the majority recommends intervening with psychotherapy alone in the hopes of preventing a full syndrome from developing. (Altshuler et al., 2001). For treatment of first episode of mild MD during second or third trimester, the experts recommend using psychotherapy alone. In contrast, for a first episode of severe depression, the treatment of choice is combining medication and psychotherapy whether the episode began during the latter part of pregnancy or earlier, with medication alone an option to consider (Altshuler et al., 2001).

Majority of the OB/GYN physicians indicated using a formal screening tool for depression. Only one third psychiatrists used depression screening tool. Psychiatrists seem to rely more on clinical impressions to manage MD. Surveys have found that only 10-15 % of the community psychiatrists use depression screening tools (Rush, 2009). Depression screening tools may not be sensitive to tease out many symptoms of depression from pregnancy related events (trouble with sleep, tiredness, emotional labiality, etc.). However; such screening tools can be time saving and effective in quantifying response to treatment.

The joint report from the APA and the ACOG on the management of MD in pregnancy finds that the routine use of self-report screening instrument does not replace or supplant clinical diagnosis but can determine which women require further assessment (Altshuler et al., 2001). Edinburgh Post-Partum Depression Scale is the most commonly used screening questionnaire for depression in pregnancy with a cut off score of 12.(Cox, Holden, & Sagovsky, 1987; Matthey, Henshaw, Elliott, & Barnett, 2006b)

The study also finds that the academic psychiatrists were significantly less likely to use non–pharmacological interventions. This is in contrast to the available literature supporting the efficacy of ECT during pregnancy. For example, Anderson et al, (Anderson & Reti, 2009) reviewed literature of use of ECT pregnancy from 1941 –2007. Of the 339 cases reviewed there were 25 fetal or neonatal complications but only 11 of these, were likely related to ECT treatment. The authors concluded ECT is an effective treatment for severe mental illness during pregnancy and risk to fetus and mother is low. Use of ECT in pregnancy at present is limited to severe treatment-resistant cases of depression, acute suicidal tendencies, depression with psychotic features, or severe dehydration or malnutrition that can occur as part of a depressive syndrome (Yonkers, Vigod, & Ross, 2011).

Evidence also exists about the usefulness of the light therapy for non-seasonal prenatal MD but mostly in adults. For example, 14 out of 16 depressed, pregnant women treated over 3–5 weeks with bright light therapy experienced a significant improvement in their symptoms (Oren et al., 2002). Further case reports have also showed that bright light therapy may be an effective and well tolerated treatment for pregnant women with non-seasonal depression (Krzystanek & Krupka-Matuszczyk, 2006) . However, the available evidence supporting the treatment of non-seasonal depression with light therapy remains limited and further research is needed. (Tuunainen A, Kripke DF, Endo T., 2008).

There was early enthusiasm for omega-3 fatty acids, although most randomized clinical trials to date have failed to show that the active treatment differs from placebo.(Freeman et al., 2006), (Rees, Austin, & Parker, 2005). However meta-analysis for the role of omega-3 fatty acids for maternal MD has been found to be less consistent and further definitive studies are needed (Hosli, Zanetti-Daellenbach, Holzgreve, & Lapaire, 2007) . A recent systematic review of maternal omega 3 fatty acid supplementation and risk for perinatal maternal depression found that of ten studies found eligible for study only two showed a positive association between -3 fatty acids and reduced incidence of maternal perinatal depression (Wojcicki & Heyman, 2011).

There are several limitations to our study including the small numbers of participant, lack of evidence of reliability or validity of the questionnaires and lack of uniformity in assessing severity of depression. The stage of pregnancy was not taken into consideration while assessing mood symptoms. Approach to clinical

depression during pregnancy can be influenced by the stage of pregnancy as most clinicians are more conservative towards psychopharmacological approach during early stages of pregnancy. There is also lack of evidence that recommendations and opinions as expressed by the respondents may not represent actual clinical practice. The questionnaire designed was not standardized for its validity or reliability. The response rates from the two clinical specialties were disproportionate and hence the may not be reflective of true trends of intervention during adolescent or adult pregnancies compared to national norms.

To the best of our knowledge, this is a unique study with no precedents in the published literature. Hence there is no available data to compare.

In our opinion, this preliminary exploratory study has tried for the first time the disparities between the practice guidelines and actual practice of intervention of maternal depression during pregnancy by two important specialties of medicine. It lays groundwork for further evaluations and for more definitive studies in future. An important aspect would be comparison of the intervention practices of these important specialties between the academic and nonacademic clinicians.

Table 1. Comparison of recommendations regarding l use of intervention for depressed pregnant adolescents and women: OB/GYN versus psychiatrists.

	Factor	OB/GYN %	Psychiatrist%	p-value
1	Will continue to evaluate for Depression			
	a. Mild	65.2	50	0.316
	b. Moderate	16.3	16.3	1.0
	c. Severe	17.1	22.2	0.799
2	Will refer for counseling if degree of Depression			
	a. Mild	28.6	72.2	0.006
	b. Moderate	48.4	48.4	1.0
	c. Severe	72.2	44.4	0.158
3	Will prescribe antidepressant if degree of Depression			
	a. Mild	11.1	1.0	0.314
	b. Moderate	51	51	1.0
	c. Severe	73.3	76.5	0.618
4	Will refer for counseling if degree of Depression			
	a. Mild	48.6	72.2	0.006
	b. Moderate	48.4	48.4	1.0
	c. Severe	72.2	44.4	0.158
5	Do you prescribe antidepressant medication to pregnant females	80.0	100.0	0.04
6	Most likely to reinitiate prescribed antidepressant medication fea-5.efl.on depression inventory and clinical impression	32.6	38.9	0.688
7	Most likely to reinitiate prescribed antidepressant medication at patient request	19.1	11.1	0.387
8	Most likely to initiate prescribed antidepressant medication based on deteriorating clinical condition	61.9	66.7	0.289
9	Most likely to initiate prescribed antidepressant medication based on clinical 32.6 impression	11.1	0.079	
10	Most likely to initiate prescribed antidepressant medication based on suicidal ideation	58.1	72.2	0.162
11	Percentages psychiatrist whowould recommend light therapy			
	a. Mild		1.4	
	b. Moderate		1.4	
	c. Severe		1.4	
12	Percentages psychiatrist who would recommend ECT			
	a. Mild		1.4	
	b. Moderate		4.3	
	c. Severe		14.5	
13	Percentages psychiatrist who would recommend Omega 3 fatty acids			
	a. Mild		4.3	
	b. Moderate		4.3	
	c. Severe		4.3	

REFERENCES

1. Altshuler, L. L., Cohen, L., Szuba, M. P., Burt, V. K., Gitlin, M., & Mintz, J. (1996). Pharmacologic management of psychiatric illness during pregnancy: Dilemmas and guidelines. *The American Journal of Psychiatry, 153*(5), 592-606.
2. Altshuler, L. L., Cohen, L. S., Moline, M. L., Kahn, D. A., Carpenter, D., Docherty, J. P., & Expert Consensus Panel for Depression in Women. (2001). The expert consensus guideline series. treatment of depression in women. *Postgraduate Medicine, (Spec No)*(Spec No), 1-107.
3. Alwan, S., Reefhuis, J., Rasmussen, S. A., Olney, R. S., Friedman, J. M., & National Birth Defects Prevention Study. (2007). Use of selective serotonin-reuptake inhibitors in pregnancy and the risk of birth defects. *The New England Journal of Medicine, 356*(26), 2684-2692. doi:10.1056/NEJMoa066584
4. American College of Obstetricians and Gynecologists. Committee on Obstetric Practice. (2010). Committee opinion no. 453: Screening for depression during and after pregnancy. *Obstetrics and Gynecology, 115*(2 Pt 1), 394-395. doi:10.1097/AOG.0b013e3181d035aa
5. Anderson, E. L., & Reti, I. M. (2009). ECT in pregnancy: A review of the literature from 1941 to 2007. *Psychosomatic Medicine, 71*(2), 235-242. doi:10.1097/PSY.0b013e318190d7ca
6. Bagner, D. M., Pettit, J. W., Lewinsohn, P. M., & Seeley, J. R. (2010). Effect of maternal depression on child behavior: A sensitive period? *Journal of the American Academy of Child and Adolescent Psychiatry, 49*(7), 699-707. doi:10.1016/j.jaac.2010.03.012
7. Bennett, H. A., Einarson, A., Taddio, A., Koren, G., & Einarson, T. R. (2004). Prevalence of depression during pregnancy: Systematic review. *Obstetrics and Gynecology, 103*(4), 698-709. doi:10.1097/01.AOG.0000116689.75396.5f
8. Centers for Disease Controll and Prevention. (2007). SUicide trends among youths and young adults ages 10-24 years: United states, 1990-2004. *MMWR Morb Mortal Wkly Rep, 56*, 905-908.
9. Chambers, C. D., Johnson, K. A., Dick, L. M., Felix, R. J., & Jones, K. L. (1996). Birth outcomes in pregnant women taking fluoxetine. *The New England Journal of Medicine, 335*(14), 1010-1015. doi:10.1056/NEJM199610033351402
10. Cole, J. A., Modell, J. G., Haight, B. R., Cosmatos, I. S., Stoler, J. M., & Walker, A. M. (2007). Bupropion in pregnancy and the prevalence of congenital malformations. *Pharmacoepidemiology and Drug Safety, 16*(5), 474-484. doi:10.1002/pds.1296
11. Coleman, Victoria H.Carter, Michele M.Morgan,Maria A.Schulkin, Jay. (2008). United states obstetrician-gynecologists' accuracy in the simulation of diagnosing anxiety disorders and depression during pregnancy. *Journal of Psychosomatic Obstetrics & Gynecology, 29*(3), 177-188. doi:10.1080/01674820701833265
12. Costei, A. M., Kozer, E., Ho, T., Ito, S., & Koren, G. (2002). Perinatal outcome following third trimester exposure to paroxetine. *Archives of Pediatrics & Adolescent Medicine, 156*(11), 1129-1132.
13. Coull, G., & Morris, P. G. (2011). The clinical effectiveness of CBT-based guided self-help interventions for anxiety and depressive disorders: A systematic review. *Psychological Medicine,* , 1-14. doi:10.1017/S0033291711000900
14. Cox, J. L., Holden, J. M., & Sagovsky, R. (1987). Detection of postnatal depression. development of the 10-item edinburgh postnatal depression scale. *The British Journal of Psychiatry : The Journal of Mental Science, 150*, 782-786.
15. Deave, T., Heron, J., Evans, J., & Emond, A. (2008). The impact of maternal depression in pregnancy on early child development. *BJOG : An International Journal of Obstetrics and Gynaecology, 115*(8), 1043-1051. doi:10.1111/j.1471-0528.2008.01752.x
16. Field, T., Diego, M., & Hernandez-Reif, M. (2006). Prenatal depression effects on the fetus and newborn: A review. *Infant Behavior & Development, 29*(3), 445-455. doi:10.1016/j.infbeh.2006.03.003
17. Freeman, M. P., Hibbeln, J. R., Wisner, K. L., Davis, J. M., Mischoulon, D., Peet, M., . . . Stoll, A. L. (2006). Omega-3 fatty acids: Evidence basis for treatment and future research in psychiatry. *The Journal of Clinical Psychiatry, 67*(12), 1954-1967.
18. Gallagher, S. (2004). Omega 3 oils and pregnancy. *Midwifery Today with International Midwife, (69)*(69), 26-31.
19. Grote, N. K., Bridge, J. A., Gavin, A. R., Melville, J. L., Iyengar, S., & Katon, W. J. (2010a). A meta-analysis of depression during pregnancy and the risk of preterm birth, low birth weight, and intrauterine growth restriction. *Archives of General Psychiatry, 67*(10), 1012-1024. doi:10.1001/archgenpsychiatry.2010.111
20. Grote, N. K., Bridge, J. A., Gavin, A. R., Melville, J. L., Iyengar, S., & Katon, W. J. (2010b). A meta-analysis of depression during pregnancy and the risk of preterm birth, low birth weight, and intrauterine growth restriction. *Archives of General Psychiatry, 67*(10), 1012-1024. doi:10.1001/archgenpsychiatry.2010.111
21. Hall, W. D., & Lucke, J. (2006). How have the selective serotonin reuptake inhibitor antidepressants affected suicide mortality? *The Australian and New Zealand Journal of Psychiatry, 40*(11-12), 941-950. doi:10.1111/j.1440-1614.2006.01917.x
22. Hoifodt, R. S., Strom, C., Kolstrup, N., Eisemann, M., & Waterloo, K. (2011). Effectiveness of cognitive behavioural therapy in primary health care: A review. *Family Practice,* doi:10.1093/fampra/cmr017
23. Hosli, I., Zanetti-Daellenbach, R., Holzgreve, W., & Lapaire, O. (2007). Role of omega 3-fatty acids and multivitamins in gestation. *Journal of Perinatal*

Medicine, 35 Suppl 1, S19-24. doi:10.1515/JPM.2007.032

24. Kallen, B. (2004). Neonate characteristics after maternal use of antidepressants in late pregnancy. *Archives of Pediatrics & Adolescent Medicine, 158*(4), 312-316. doi:10.1001/archpedi.158.4.312

25. Krzystanek, M., & Krupka-Matuszczyk, I. (2006). Bright light therapy in pregnant women depression--3 case studies. [Leczenie swiatlem widzialnym depresji u kobiet w ciazy--studium 3 przypadkow] *Psychiatria Polska, 40*(2), 261-267.

26. LaRocco-Cockburn, A., Melville, J., Bell, M., & Katon, W. (2003). Depression screening attitudes and practices among obstetrician-gynecologists. *Obstetrics and Gynecology, 101*(5 Pt 1), 892-898.

27. Lennestal, R., & Kallen, B. (2007). Delivery outcome in relation to maternal use of some recently introduced antidepressants. *Journal of Clinical Psychopharmacology, 27*(6), 607-613. doi:10.1097/jcp.0b013e31815ac4d2

28. Logsdon, M. C., Cross, R., Williams, B., & Simpson, T. (2004). Prediction of postpartum social support and symptoms of depression in pregnant adolescents: A pilot study. *The Journal of School Nursing, 20*(1), 36-42. doi:10.1177/10598405040200010701

29. Louik, C., Lin, A. E., Werler, M. M., Hernandez-Diaz, S., & Mitchell, A. A. (2007). First-trimester use of selective serotonin-reuptake inhibitors and the risk of birth defects. *The New England Journal of Medicine, 356*(26), 2675-2683. doi:10.1056/NEJMoa067407

30. Marcus, S., Lopez, J. F., McDonough, S., Mackenzie, M. J., Flynn, H., Neal, C. R.,Jr, . . . Vazquez, D. M. (2011). Depressive symptoms during pregnancy: Impact on neuroendocrine and neonatal outcomes. *Infant Behavior & Development, 34*(1), 26-34. doi:10.1016/j.infbeh.2010.07.002

31. Markus, E. M., & Miller, L. J. (2009). The other side of the risk equation: Exploring risks of untreated depression and anxiety in pregnancy. *The Journal of Clinical Psychiatry, 70*(9), 1314-1315. doi:10.4088/JCP.09com05454

32. Matthey, S., Henshaw, C., Elliott, S., & Barnett, B. (2006a). Variability in use of cut-off scores and formats on the edinburgh postnatal depression scale: Implications for clinical and research practice. *Archives of Women's Mental Health, 9*(6), 309-315. doi:10.1007/s00737-006-0152-x

33. Matthey, S., Henshaw, C., Elliott, S., & Barnett, B. (2006b). Variability in use of cut-off scores and formats on the edinburgh postnatal depression scale: Implications for clinical and research practice. *Archives of Women's Mental Health, 9*(6), 309-315. doi:10.1007/s00737-006-0152-x

34. Mergl, R., Henkel, V., Allgaier, A. K., Kramer, D., Hautzinger, M., Kohnen, R., . . . Hegerl, U. (2011). Are treatment preferences relevant in response to serotonergic antidepressants and cognitive-behavioral therapy in depressed primary care patients? results from a randomized controlled trial including a patients' choice arm. *Psychotherapy and Psychosomatics, 80*(1), 39-47. doi:10.1159/000318772

35. Misri, S. (2007). Suffering in silence: The burden of perinatal depression. *Canadian Journal of Psychiatry.Revue Canadienne De Psychiatrie, 52*(8), 477-478.

36. Morrato, E. H., Libby, A. M., Orton, H. D., Degruy, F. V.,3rd, Brent, D. A., Allen, R., & Valuck, R. J. (2008). Frequency of provider contact after FDA advisory on risk of pediatric suicidality with SSRIs. *The American Journal of Psychiatry, 165*(1), 42-50. doi:10.1176/appi.ajp.2007.07010205

37. Oren, D. A., Wisner, K. L., Spinelli, M., Epperson, C. N., Peindl, K. S., Terman, J. S., & Terman, M. (2002). An open trial of morning light therapy for treatment of antepartum depression. *The American Journal of Psychiatry, 159*(4), 666-669.

38. Pinette, M. G., & Wax, J. R. (2010). The management of depression during pregnancy: A report from the american psychiatric association and the american college of obstetricians and gynecologists. *Obstetrics and Gynecology, 115*(1), 188-9; author reply 189. doi:10.1097/AOG.0b013e3181c8b21d

39. Quinlivan, J. A., Tan, L. H., Steele, A., & Black, K. (2004). Impact of demographic factors, early family relationships and depressive symptomatology in teenage pregnancy. *Australian & New Zealand Journal of Psychiatry, 38*(4), 197-203.

40. Raudzus, J., & Misri, S. (2009). Managing unipolar depression in pregnancy. *Current Opinion in Psychiatry, 22*(1), 13-18. doi:10.1097/YCO.0b013e3283169375

41. Rees, A. M., Austin, M. P., & Parker, G. (2005). Role of omega-3 fatty acids as a treatment for depression in the perinatal period. *The Australian and New Zealand Journal of Psychiatry, 39*(4), 274-280. doi:10.1111/j.1440-1614.2005.01565.x

42. Rush, A. J. (2009). *The rate of use of depression screening tools in out patient setting by psychiatrists.*

43. Setse, R., Grogan, R., Pham, L., Cooper, L. A., Strobino, D., Powe, N. R., & Nicholson, W. (2009). Longitudinal study of depressive symptoms and health-related quality of life during pregnancy and after delivery: The health status in pregnancy (HIP) study. *Maternal and Child Health Journal, 13*(5), 577-587. doi:10.1007/s10995-008-0392-7

44. Shanok, A. F., & Miller, L. (2005). Fighting and depression among poor pregnant adolescents. *Journal of Reproductive & Infant Psychology, 23*(3), 207-218.

45. Spitzer, R. L., Williams, J. B., Kroenke, K., Hornyak, R., & McMurray, J. (2000). Validity and utility of the PRIME-MD patient health questionnaire in assessment of 3000 obstetric-gynecologic patients: The PRIME-MD patient health questionnaire obstetrics-gynecology study. *American Journal of Obstetrics and Gynecology, 183*(3),

759-769.

46. Tuunainen A, Kripke DF, Endo T. (2008).

47. Van Dijk, A. E., Van Eijsden, M., Stronks, K., Gemke, R. J., & Vrijkotte, T. G. (2010). Maternal depressive symptoms, serum folate status, and pregnancy outcome: Results of the amsterdam born children and their development study. *American Journal of Obstetrics and Gynecology, 203*(6), 563.e1-563.e7. doi:10.1016/j.ajog.2010.07.017

48. Wojcicki, J. M., & Heyman, M. B. (2011). Maternal omega-3 fatty acid supplementation and risk for perinatal maternal depression. *J Matern Fetal Neonatal Med, 24*(5), 680-686. doi:10.3109/14767058.2010.521873

49. Yonkers, K. A., Vigod, S., & Ross, L. E. (2011). Diagnosis, pathophysiology, and management of mood disorders in pregnant and postpartum women. *Obstetrics and Gynecology, 117*(4), 961-977. doi:10.1097/AOG.0b013e31821187a7

50. Yonkers, K. A., Wisner, K. L., Stewart, D. E., Oberlander, T. F., Dell, D. L., Stotland, N., . . . Lockwood, C. (2009). The management of depression during pregnancy: A report from the american psychiatric association and the american college of obstetricians and gynecologists. *General Hospital Psychiatry, 31*(5), 403-413. doi:10.1016/j.genhosppsych.2009.04.003