Published in final edited form as:

Am J Obstet Gynecol. 2015 June ; 212(6): 740–746. doi:10.1016/j.ajog.2014.12.010.

Contraception and Mental Health: A Commentary on the Evidence and Principles for Practice

Kelli Stidham Hall, Ph.D., M.S., NP,

Research Investigator and “BIRCWH” NIH K-12 Scholar, Department of Obstetrics and Gynecology; Institute for Social Research, Population Studies Center, University of Michigan, L4000 Women’s Hospital, 1500 East Medical Center Dr., Ann Arbor, MI 48109, (t) 734-232-1818 hkelli@umich.edu (f) 734-647-9727

Julia R. Steinberg, Ph.D., M.A.,

Department of Psychiatry, University of California San Francisco

Carrie A. Cwiak, M.D. MPH,

Department of Obstetrics and Gynecology, Emory University

Rebecca H. Allen, M.D. MPH, and

Department of Obstetrics and Gynecology, Brown University

Sheila M. Marcus, M.D.

Department of Psychiatry, University of Michigan

Abstract

Among the most prevalent and disabling chronic diseases affecting reproductive aged women worldwide, depression and anxiety can contribute to adverse reproductive health outcomes, including an increased risk of unintended pregnancy and its health and social consequences. For women with these common mental health conditions who wish to avoid an unintended pregnancy, effective contraception can be an important strategy to maintain and even improve health and wellbeing. Reproductive health clinicians play a critical role in providing and managing contraception to help women with mental health considerations achieve their desired fertility. In this commentary, we review the literature on relationships between mental health and contraception and describe considerations for clinical management of contraception among women with depression and anxiety. We discuss issues related to contraceptive method effectiveness and adherence concerns, mental health-specific contraceptive method safety and drug interaction considerations, and clinical counseling and management strategies. Given important gaps in current scientific knowledge of mental health and contraception, we highlight areas for future research.

© 2014 Elsevier Inc. All rights reserved.

Correspondence to: Kelli Stidham Hall.

Publisher's Disclaimer: This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final citable form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.

Conflicts of interest: Dr. Marcus has no disclosures to report.

Keywords

mental health; depression; anxiety; contraception; contraceptive management; unintended pregnancy

Evidence on Relationships between Mental and Reproductive Health

Depression and Anxiety Among Reproductive Aged Women

Depressive and anxiety disorders are among the leading causes of disability in the United States and worldwide.¹ Compared to men, U.S. women are 70% more likely than men to experience a depressive disorder and 60% more likely to experience an anxiety disorder.¹ Approximately 12% of women will experience major depression in their lifetime; 8.4% will experience a depressive disorder each year.¹ Women experience anxiety disorders at even higher rates, and anxiety disorders are highly comorbid with depression.¹ And while common, depression and anxiety disorders often go undetected and untreated among reproductive aged women.^{1,2} In recent years, less than half of U.S. women ages 15–44 with a major depressive episode received a mental health diagnosis and less than half received treatment.^{1,2} Moreover, poor, unemployed, and less educated women experience higher rates of mental health disorders and lower rates of mental health detection and treatment than their socially advantaged counterparts; racial/ethnic minority women receive mental health care at even lower rates.^{1,2}

Mental Health, Unintended Pregnancy, and Reproductive Outcomes

Women with depression and anxiety experience an elevated risk of unintended pregnancy, and those pregnancies may be more likely to end in induced abortion, compared to women without depression and anxiety.³ Depression and anxiety are precursors to a host of negative perinatal and postpartum outcomes, including maternal and infant morbidity, obstetrical complications, preterm labor, stillbirth, low birth weight, and antepartum and postpartum depression,⁴ especially when pregnancies are unintended. Poor, underinsured, undereducated, and minority women disproportionately suffer mental health morbidity, low rates of detection and treatment and adverse reproductive outcomes, including unintended pregnancy.^{1,2,5}

Relationships between Mental Health and Contraception

Effects of Contraception on Mental Health—Deficiencies in neurotransmitters that impact mood (serotonin, norepinephrine, dopamine, GABA, and peptides) have been implicated in clinical studies of depression and anxiety, and genetic predisposition and psychosocial stressors appear to be important precursors to neurotransmitter deficiencies.¹ Contraceptive researchers in the 1960s and 1970s hypothesized that large dosages of synthetic estrogens and progestins in combined oral contraceptive pills (COCs) (e.g. Enovid: 5mg norethynodrel, 75mcg mestranol) could potentially interact with mood-related neurotransmitters and neurotransmitter metabolism.⁶

While there have been no published clinical trials to date using hormonal bioassays or brain imaging to clarify these relationships, newer evidence suggests that the steroidal activity of

lower-dosage modern contraceptives do not have a clinically relevant physiological impact on women's mood or mood-related neuroendocrine functioning.⁷ In a systematic review of studies examining COC pharmacological properties and mood, Robinson et al found no evidence for an association between the intrinsic biochemical mechanisms of COCs and mood side effects reported by COC users.⁷ In the 2010 Medical Eligibility Criteria for Contraceptive Use report, the Centers for Disease Control and Prevention (CDC) concluded there are no contraindications to hormonal contraception for women with depression, citing a lack of evidence supporting a causal relationship. Prospective population-based cohort studies and clinical placebo-controlled trials have consistently reported similar or even lower rates of depression or mood symptoms in COC users compared to nonusers.⁸ More recent pharmacological research on fourth generation drospirenone-containing COCs found improvements of premenstrual dysphoric disorder (PMDD) mood symptoms. Research on the depot medroxyprogesterone acetate injectable (DMPA), transdermal patch, vaginal ring, subdermal implant, and levonorgestrel-releasing and copper-containing intrauterine devices (IUDs) has also found no evidence of negative mood effects with use of these methods.⁹ Given that some recent studies have relied upon observational and cross-sectional designs and small sample sizes, additional research that employs rigorous prospective, longitudinal and randomized controlled trial designs is needed to provide a more definitive comment on the null effects of contraception on women's mental health.

Effects of Mental Health on Contraceptive Behavior—A growing number of studies have documented higher rates of contraceptive nonuse, misuse, and discontinuation among women with depressive, anxiety, and related stress and distress symptoms compared to women without symptoms. These findings, which have been consistent across studies, populations and settings, have been most widely noted for COCs and condoms but have also been demonstrated for DMPA, IUDs, and implants.^{9,10} The impact of mental health on contraceptive method selection is less clear. Some clinical and population-based studies of non-pregnant women have found less effective method use (i.e. condoms and withdrawal versus COCs and LARC) to be associated with higher depression and stress symptoms,¹⁰ while a study of post-abortion patients found higher rates of IUD use was associated with greater mental distress symptoms.¹¹ Reasons for these differences across contexts are not fully apparent and warrant further research.

Little science exists to explain how or why mental health influences contraceptive behavior. Psychological research suggests that altered cognitive processes may contribute to heightened "perceptions" of physical symptoms among women with mental health conditions.¹² COC discontinuation rates from perceived mood symptoms are not uncommon (range 14–21% in some studies), despite the evidence refuting causal associations. Depressed or anxious women may also internalize negative or incorrect information about contraception and have exaggerated concerns about risks and side effects.¹² Additionally, risk assessment, planning, social learning, decreased motivation and desire for self-care, excessive worry, and diminished perceptions of susceptibility to pregnancy may impact contraceptive decision-making processes and lead to suboptimal contraceptive choices among women with depression and anxiety.¹² Additional studies are needed to test these mechanistic theories.

Principles for Clinical Management of Mental Health and Contraception

Mental Health and the Reproductive Health Encounter

Depression and anxiety may have important implications for family planning, and reproductive health settings offer an optimal opportunity to improve detection and treatment of these common mental health conditions among reproductive aged women. Risk factors for mental health conditions should be identified in the past medical history, including personal or family history of depression and anxiety or other mental health disorders, other chronic medical illnesses such as cancer, stroke, or HIV/AIDs, and having adverse life experiences, including exposure to physical and sexual violence or trauma.¹ Signs and symptoms of depression and anxiety can impact patient-provider communication and interaction in important ways but may not be obvious to the provider or patient.^{13–16} Lack of awareness and insight into mental health issues and perceived stigma are barriers to disclosure of mental health symptoms. Assessment of psychological wellbeing and its impact on sexual and reproductive health functioning should be a routine component of the patient interview. Patience, empathy, and use of reflective listening, a non-judgmental tone, and open-ended questions may facilitate women's comfort in disclosing mental health issues.^{13–16} Discussions can be initiated with an educational statement such as, "Did you know that over one fifth of women will have symptoms that meet criteria for depression in their lifetime? Because depression is so common, I like to check in with all my patients about their own mental health." Observing for a sad voice, anxious expressions, lethargic posture, or a clinical presentation of multiple, vague complaints, non-specific symptoms, or pain-related syndromes (e.g. non-specific vulva, pelvic, vaginal, coital, or menstrual-related pain, headaches, or gastrointestinal disturbances) may alert providers to an underlying depressive or anxiety disorder.^{13–16} Providers should also monitor for transference: feeling down, sad, and upset after seeing a distressed patient.¹³

In busy clinical settings, standardized mental health screening is an efficient, effective, and feasible way to improve detection of depression and anxiety and thus should be used routinely and systematically, including with all well-woman exams and new patients.¹⁷ Table 1 highlights commonly used, evidence-based screening instruments. The Prime-MD Patient Health Questionnaire (PHQ) is perhaps the most commonly used, preferred screening tool in current primary care and other non-psychiatric settings and can be seamlessly included in electronic medical record charting. Standardized diagnostic criteria such as those delineated in the Diagnostic and Statistical Manual of Mental Disorders (DSM) should be followed when diagnosing a depressive or anxiety disorder.¹⁷ Differential diagnoses for new onset mental health symptoms may include hypothyroidism, diabetes mellitus, anemia, cancer, multiple sclerosis, eating disorders, substance abuse disorders, acute stress or grief, or use of certain medications such as beta-blockers or calcium channel blockers, glucocorticoids, or GnRH agonists. These conditions can cause symptoms that mimic depression or anxiety and should be ruled out.^{13–16} Provision of basic information on the prevalence, signs, symptoms, and treatment options for depression, anxiety, and related disorders may facilitate an open dialogue between the patient and provider. Referral systems should be in place for women who require further evaluation and treatment by a mental health specialist.

Depression, Anxiety, and Contraceptive Management

For the most part, women with depression and anxiety are eligible for the full range of contraceptive methods, and method selection should occur through shared decision-making between the patient and provider, taking into account individual health circumstances, contraceptive preferences, and fertility goals (see Table 2). In the CDC Medical Eligibility Criteria for Contraceptive Use, depression is a Category 1, indicating no restrictions for use of any form of hormonal contraception. Modern pharmacologic antidepressant agents, including the most commonly used selective serotonin reuptake inhibitors (SSRIs, such as fluoxetine, citalopram, escitalopram, and sertraline) and serotonin norepinephrine reuptake inhibitors (SNRIs, such as venlafaxine and duloxetine), do not appear to interact with hepatic metabolism of hormonal contraceptives, including COCs.^{13–16,18} In contrast, tricyclics (TCAs, such as amitriptyline or nortriptyline) and monoamine oxidase inhibitors (MAOIs, such as phenelzine and tranylcypromine), which are older generation antidepressant agents used in treatment-refractory chronic depression, are highly interactive with foods and drugs and may interact with contraceptive steroid metabolism in the liver, potentially leading to decreased contraceptive efficacy or antidepressant side effects or toxicity.^{13–16,18} St. John's wort (*hypericum perforatum*), an over-the-counter antidepressant therapy, may also induce the cytochrome P450 system and subsequently reduce contraceptive steroid availability, though existing evidence is inconsistent.¹⁹ For women who require more intensive psychiatric treatment with TCAs, MAOIs, or those using St. John's wort, locally-acting methods such as the levonorgestrel-releasing IUD or copper-containing IUD are safe alternatives. Non-pharmacologic therapies, including cognitive behavioral therapy, interpersonal psychotherapy, and adjunct therapies like exercise, sleep, and healthy diet, should not interfere with contraception or preclude use of any methods and may reinforce problem-solving and coping skills and self-care techniques that mutually benefit family planning decision-making and behaviors.^{13–16}

Potential contraceptive adherence issues may be an important factor for appropriate method selection for women with depression and anxiety. The greatest body of evidence linking mental health and contraceptive side effects, misuse, and discontinuation has been documented for user-dependent methods, including condoms and COCs.²⁰ LARC methods require little user burden, are cost effective, and offer the greatest contraceptive effectiveness, potentially making them ideal options for women with mental health conditions.²¹ For women who do not prefer long-acting methods, DMPA, the vaginal ring, or transdermal patch are alternative options.

For COC selection and management, several strategies may be clinically useful. Research has suggested that women's experiences with perceived side effects, including mood, are similar across different types of COCs and most women do well with any COC.²² In early high-dose COC formulations, a dose-response relationship with mood side effects was noted.²¹ So while newer research does not support such a relationship with modern doses, providers may consider formulations with lower estrogen dosages (i.e. 20 mcg versus >20 mcg).²³ This should be balanced with the likelihood of other side effects, including irregular bleeding, as well as potentially reduced effectiveness with missed pills.²³ Widely used levonorgestrel- and norgestrel-containing COCs are not known to contribute to mental

health symptoms and some research has shown improved mood symptoms among women taking second generation COCs compared to women on placebo.^{8,24} Newer drospirenone-containing COCs are approved by the Food and Drug Administration for treatment of mood symptoms occurring specifically with PMDD and should be an option for women with depression and anxiety. Additionally, cyclic mood symptoms occurring during ovulation or menses may respond well to steady dose monophasic (versus multiphasic) formulations.²⁵ Estrogen withdrawal mood symptoms during COC placebo weeks may respond to extended cycle regimens (e.g. 24/4, 84/7) or continuous dosing (i.e. skipping inactive pills).²⁶

In specific cases, such as postpartum and perimenopausal depression, women may not be aware of their risk of unintended pregnancy and may also have unique contraceptive considerations. Estrogen-containing contraceptives are generally not recommended during the first postpartum month among breastfeeding women due to possible reduction in breast milk production;²¹ instead, the copper-containing IUD or progestin-only methods including the levonorgestrel-releasing IUD, subdermal implant, DMPA, or progestin-only pills can be used. For ovulating perimenopausal women with hormonal and mood fluctuations or menstrual and vasomotor symptoms, COCs, the patch, or ring may also treat symptoms.²¹ Women's cardiovascular risks, tobacco use, and other contraindications to estrogen should be assessed.

Counseling Strategies for Contraception and Mental Health

Women with depression and anxiety, as well as all women, may benefit from education and counseling strategies that deliver repeated and specific information on user-related method effectiveness rates and the relationship of contraceptive effectiveness to mental wellbeing (e.g. daily pills require diligence and motivation for correct use, with which depression or anxiety may interfere).²⁷ Providers should monitor for and counsel on adherence issues; reports of missing dosages or discontinuation of an antidepressant may alert the provider to contraceptive misuse or discontinuation.²⁸ Evidence-based counseling techniques like motivational interviewing can be used to focus attention on specific problematic behaviors (e.g. frequent missed pills, circumstances around condom nonuse) to evoke motivation for change by increasing confidence, readiness, and planning to improve contraceptive behaviors,^{16,29} for instance the use of cell phone reminders or a consistent daily pill-taking routine. Providers should also work to dispel myths and misperceptions of side effects and reinforce the benefits and positive non-contraceptive effects of modern methods. Finally, counseling should include information on dual method use (i.e. condoms) and sexual risk behavior given documented higher rates of sexually transmitted infections among women with depression and anxiety.³⁰

An assessment of other dimensions of women's lives that may impact mental and reproductive health, including financial hardship, lack of social support, relationship violence, and other stressful life events may identify potential triggers of depression and anxiety, especially among social disadvantaged groups of women who disproportionately experience these risk factors. Women in violent or controlling relationships may experience reproductive coercion, birth control sabotage, intentional exposure to sexually transmitted infections, unintended pregnancy, and lack of control over their pregnancy outcomes; they

may also have limited access to health services and contraception.^{31,32} Routine screening for intimate partner violence can identify women who may have special contraceptive and mental health considerations. Inconspicuous methods that maximize contraceptive control and effectiveness and minimize the likelihood of exacerbating partner resistance or violence, such as DMPA, may be helpful. IUDs or the implant may offer other subtle highly effective options that require less frequent health service visits. Information on local resources for counseling or mental health services and insurance or medication assistance programs should be readily available in reproductive health clinical settings.

Conclusion

Depression and anxiety are common among reproductive aged women and have significant implications for reproductive health, including risk of unintended pregnancy and adverse perinatal and postpartum outcomes. There has been a lack of attention to mental health in family planning contexts, and significant research gaps exist and preclude an in-depth understanding of the most effective approaches for contraceptive management among women with depression and anxiety. While additional research can more comprehensively identify the role of mental health in contraceptive management (and vice versa), reproductive health providers should prioritize contraceptive counseling and management for women with depression and anxiety who wish to avoid unintended pregnancy. Ultimately, mental health promotion may reduce adverse pregnancy-related outcomes, improve family planning experiences, and help achieve reproductive goals for women, their families, and society.

Acknowledgments

Funding sources: Dr. Hall was supported by an NICHD K-12 award #K12HD001438 (PI Johnson). Dr. Steinberg's effort was supported by NICHD K01 grant #K01HD075834.

Drs. Hall and Steinberg served on a speaker's panel for Contraceptive Technology. Dr. Cwiak received funding for an intrauterine device research study from Medicines360, is an Implanon/Nexplanon faculty trainer for Merck, and received royalties from Springer Inc. Dr. Allen has served on advisory boards for Bayer Pharmaceuticals and Activis, is a faculty trainer for Merck, and received royalties from Springer Inc.

References

1. National Institute of Mental Health. [Accessed July 31, 2014] Mental health statistics. Available at <http://www.nimh.nih.gov/health/topics/anxiety-disorders/index.shtml>
2. Farr SL, Dietz PM, Williams JR, Gibbs FA, Tregear S. Depression screening and treatment among non-pregnant women of reproductive age in the United States: 1990–2010. *Prev Chron Dis*. 2011; 8:A122.
3. Steinberg JR, Trussell J, Hall KS, Guthrie K. Fatal flaws in a recent meta-analysis on abortion and mental health. *Contraception*. 2012; 86:4307.
4. Alder J, Fink N, Bitzer J, Hosli I, Holzgreve W. Depression and anxiety during pregnancy: A risk factor the obstetric, fetal and neonatal outcome? A critical review of the literature. *J Maternal-Fetal Neonatal Med*. 2007; 20:189–209.
5. Finer LB, Henshaw SK. Disparities in rates of unintended pregnancy in the United States, 1994 and 2001. *Persp Sex Reprod Health*. 2006; 38:90–96.
6. Moller SE. Effect of oral contraceptives on tryptophan and tyrosine availability: Evidence for a possible contribution to mental depression. *Neuropsychobio*. 1981; 7:192–200.

7. Robinson SA, Dowell M, Pedulla D, McCauley L. Do the emotional side-effects of hormonal contraceptives come from pharmacologic or psychological mechanisms? *Med Hypotheses*. 2004; 63:268–273.
8. O'Connell K, Davis AR, Kerns J. Oral contraceptives: side effects and depression in adolescent girls. *Contraception*. 2007; 75:299–304. [PubMed: 17362710]
9. Westhoff C, Truman C, Kalmuss D, et al. Depressive symptoms and Depo-Provera. *Contraception*. 1998; 57:237–240. [PubMed: 9649914]
10. Hall K, Moreau C, Trussell J, Barber J. Role of young women's depression and stress symptoms in their weekly use and nonuse of contraceptive methods. *J Adolesc Health*. 2013; 53:241–248. [PubMed: 23582524]
11. Steinberg JR, Tschann JM, Henderson JT, Drey EA, Steinauer JE, Harper CC. Psychological distress and post-abortion contraceptive choice at an urban clinic. *Contraception*. 2013; 88:717–724. [PubMed: 24094755]
12. Beck AT. Cognitive models of depression. *Journal of Cognitive Psychotherapy*. 1987; 1:5–37.
13. Mann JJ. The medical management of depression. *NEJM*. 2005; 353:1819–1834. [PubMed: 16251538]
14. Hackley B, Sharma C, Kedzior A, Sreenivasan S. Managing mental health conditions in primary care settings. *J Midwifery Women's Health*. 2010; 55:9–19. [PubMed: 20129225]
15. National Institute for Health and Clinical Excellence Clinical guidelines CG90, TMAP Guidelines, The MacArthur Initiative on Depression and Primary Care. Author; 2009.
16. [Accessed February 1, 2013] ARHP's Clinical Advisory Committee for The Reproductive Health Implications of Depression, September 2011. Available at <http://www.arhp.org/core>
17. American Psychological Association. [Accessed February 1, 2013] Assessment tools. Available at <http://www.apa.org/pi/about/publications/caregivers/practice-settings/assessment/tools/index.aspx>
18. D'Arcy PF. Drug interactions with oral contraceptives. *Drug Intell Clin Pharm*. 1986; 20:353–362. [PubMed: 3519141]
19. Murphy PA, Kern SE, Stanczyk FZ, Westhoff CL. Interaction of St. John's wort with oral contraceptives; effects on the pharmacokinetics of norethindrone and ethinyl estradiol, ovarian activity and breakthrough bleeding. *Contraception*. 2005; 71:402–408. [PubMed: 15914127]
20. Hall K, Moreau C, Trussell J, Barber J. Young women's consistency of contraceptive use – do depression and stress matter? *Contraception*. 2013; 88:641–649. [PubMed: 23850075]
21. Hatcher, RA.; Trussell, J.; Stewart, F., et al. *Contraceptive Technology*. 20th revised edition. New York: Ardent Media; 2004.
22. Moreau C, Trussell J, Gilbert F, Bajos N, Bouyer J. Oral contraceptive tolerance: does the type of pill matter? *Obstet Gynecol*. 2007; 109:1277–1285. [PubMed: 17540798]
23. Gallo MF, Grimes NK, Lopez LM, Schulz KF. 20ug versus >20ug estrogen combined oral contraceptives for contraception. *The Cochrane Collaboration Review* 2011, 1. Available at <http://www.thecochranelibrary.com>.
24. Lawrie TA, Helmerhorst FM, Maitra NN, Kulier R, Bloemenkamp K, Gulmezoglu AM. Types of progestogens in combined oral contraception: effectiveness and side-effects. *The Cochrane Collaboration Review* 2011, 5. Available at <http://www.thecochranelibrary.com>.
25. Van Vliet HAAM, Grimes DA, Lopez LM, Schulz KF, Helmerhorst FM. Triphasic versus monophasic oral contraceptives for contraception. *The Cochrane Collaboration Review* 2011, 12. Available at <http://www.thecochranelibrary.com>.
26. Edelman A, Gallo MF, Jensen JT, Nichols MD, Grimes DA. Continuous or extended cycle vs. cyclic use of combined hormonal contraceptives for contraception. *The Cochrane Collaboration Review* 2011, 8. Available at <http://www.thecochranelibrary.com>.
27. Frost JJ, Lindberg LD, Finer LB. Young adults' contraceptive knowledge, norms and attitudes: associations with risk of unintended pregnancy. *Persp Sex Reprod Health*. 2012; 44(2):107–116.
28. DiMatteo MR, Lepper HS, Croghan TW. Depression is a risk factor for noncompliance with medical treatment: Meta-analysis of the effects of anxiety and depression on patient adherence. *Arch Intern Med*. 2000; 160:2101–2107. [PubMed: 10904452]

29. Lopez LM, Tolley EE, Grimes DA, Mario CM. Theory-based strategies for improving contraceptive use: a systematic review. *Contraception*. 2009; 79:411–411. [PubMed: 19442774]
30. Lehrer JA, Shrier LA, Gortmaker S, Buka S. Depressive symptoms as longitudinal predictors of sexual risk behaviors among US middle and high school students. *Pediatrics*. 2006; 118:189–200. [PubMed: 16818565]
31. American College of Obstetricians and Gynecologists. Intimate partner violence. Committee Opinion No. 518. *Obstet Gynecol*. 2012; 119:412–417. [PubMed: 22270317]
32. Miller E, Decker MR, McCauley HL, Tancredi DJ, Levenson RR, Waldman J, Schooenwald P, Silverman JG. Pregnancy coercion, intimate partner violence and unintended pregnancy. *Contraception*. 2010; 81:316–322. [PubMed: 20227548]

Table 1

Screening Instruments for Depression and Anxiety

Instrument Name	Items; Scoring Criteria	Example Items
1. Primary Care Evaluation of Mental Disorders Patient Health Questionnaire (Prime-MD PHQ) ^{a,b}	2-and 9-item versions depression subscale; 0 = not at all to 3=nearly every day; 5-item anxiety subscale; Yes or No.	Over the last 2 weeks, how often have you... 1 Had little interest or pleasure in doing things. 2 Been feeling down, depressed, or hopeless. 3 Had trouble concentrating on things such as reading the newspaper or watching television. In the last 4 weeks, have you had... 1 An anxiety attack---suddenly feeling fear or panic? 2 Has this ever happened before? 3 Do these attacks bother you a lot or are you worried about having another attack?
2. Center for Epidemiological Study of Depression Scale (CES-D) ^c	10-and 20-item versions; 0 = rarely or none of the time to 3 = most or all of the time	During past week, how often have you experienced... 1 I was bothered by things that usually don't bother me. 2 I felt that everything I did was an effort. 3 I talked less than usual.
3. Beck Depression Inventory-Revised ^d	21 groups of statements; choose one of each group	Pick the one statement of each group that best describes how you have been feeling during the past 2 weeks, including today. Group 1 I do not feel sad. I feel sad much of the time. I am sad all the time. I am so sad or unhappy that I can't stand it.
4. Depression Anxiety Stress Scales (DASS) ^e	21-and 42-item versions; 0 = not at all to 3 = very much or most of the time	How much has each statement applied to you over the past week? 1 I felt downhearted and blue. 2 I felt that life was meaningless. 3 I felt I was pretty worthless. 4 I was aware of the action of my heart in the absence of physical exertion (e.g., sense of heart rate increase, heart missing a beat). 5 I was aware of dryness of my mouth. 6 I was worried about situations in which I might panic or make a fool of myself.
5. Beck Anxiety Inventory (BAI) ^f	21 items; 0 = not at all to 3 = severely-it bothered me a lot	Rate how much you have been bothered by each of the following in the last week. 1 Numbness or tingling 2 Terrified or afraid 3 Fear of losing control
6. Spielberger State and Trait Anxiety ^g	40 items; 0 = almost never to 3 = almost always	Rate how often the statement is true about you. 1 I am tense. 2 I am worried. 3 I feel calm. 4 I worry too much over something that really doesn't matter.

Instrument Name	Items; Scoring Criteria	Example Items
		5 I am content; I am a steady person.

Adapted with permission from Hall, Steinberg and Marcus. In Cwiak and Allen (Eds), *Contraception for the Medically Challenging Patient*. Springer, 2014.

^aKroenke K, Spitzer RL, Williams JB. The patient health questionnaire-2: validity of a two-item depression screener. *Med Care* .2003; 41:1284-92.

^bSpitzer RL, Kroenke K, Williams JBW, and the Patient Health Questionnaire Primary Care Study Group. Validation and utility of a self-report version of PRIME-MD: The PHQ Primary Care Study. *JAMA*. 1999; 282 (18): 1737-1744.

^cRadloff, L.S. The CES-D scale: A self-report depression scale for research in the general population. *Applied Psych Meas*. 1977;1:385-401.

^dRichter P, Werner J, Heerlein A, Kraus A, Sauer H. On the validity of the Beck Depression Inventory: A review. *Psychopathology*. 1998; 31(3): 160-168.

^eLovibond PF & Lovibond SH. The structure of negative emotional states: Comparison of the Depression Anxiety Stress Scales (DASS) with The Beck Depression and Anxiety Inventories. *Behav Res Ther*. 1995;33(3): 335-343.

^fFydrich T, Dowdall D, Chambless DL. Reliability and validity of the Beck Anxiety Inventory. *J Anxiety Dis*. 1992; 6(1): 55-61.

^gSpielberger CD, Gorsuch RL, Lushene R, Vagg PR, Jacobs GA. State-trait anxiety inventory for adults: Manual, Test Booklet and Scoring Key 1983; Palo Alto, CA: Consulting Psychologist Press, Inc.

Table 2

Considerations for Contraceptive Method Options for Women with Depression and Anxiety

	CONTRACEPTIVE METHODS		
	Long-acting reversible contraceptives copper-containing intrauterine device (IUD), levonorgestrel IUD, subdermal implants	Progestin-only contraceptives Depot medroxyprogesterone acetate injectable (DMPA), progestin-only pills (POPs)	Combined hormonal contraceptives combined oral contraceptives (COCs), vaginal ring, transdermal patch
1. Adherence concerns	++	DMPA + POPs +/-	+/-
2. Mood side effect concerns	++	+	+
3. Menstrual irregularity concerns	Copper IUD ++ Levonorgestrel IUD +/- Implant +/-	DMPA+ POPs +/-	++
4. Postpartum depression and breast feeding ^a	Copper IUD ++ Levonorgestrel IUD + Implant +	+	+/-
5. Perimenopausal depression	+	+	If no contraindications to estrogen: COCs ++ Ring/Patch +
6. Premenstrual dysphoric disorder (PMDD)	+	+	COCs with Drospirenone + + Ring/Patch +
7. Medical comorbidities (cardiovascular risks, age >35 years and a smoker, other estrogen contraindications)	Copper IUD ++ Levonorgestrel IUD + Implant +	DMPA + POPs +	–
8. Modern antidepressants use (SSRIs or SNRIs)	+	+	+
9. Older generation antidepressant use (TCAs, MAOIs, St. John's wort); mood stabilizer/ anti-epileptic use	Copper IUD ++ Levonorgestrel + Implant –	DMPA + POPs –	–
10. Intimate partner violence	++	DMPA ++ POP +/-	+/-

Adapted with permission from Hall, Steinberg and Marcus. In Cwiak and Allen (Eds), *Contraception for the Medically Challenging Patient*. Springer, 2014.

IUD = intrauterine device; DMPA = depot medroxyprogesterone acetate; POPs = progestin-only pills; COCs = combined oral contraceptives; TCAs = tricyclic antidepressants; MAOIs = monoamine oxidase inhibitors; SSRI = selective serotonin reuptake inhibitors; SNRI = serotonin norepinephrine reuptake inhibitors.

++ indicates highly acceptable; first line option; + indicates acceptable option; +/- indicates acceptable but not optimal option; – indicates unacceptable option.

^a Combined oral contraceptives are acceptable (CDC category 2) after the first postpartum month among women who are breastfeeding.