CLINICAL GUIDELINES

PERINATAL MENTAL HEALTH GUIDELINES ON DEPRESSION & ANXIETY

FEBRUARY 2023

ACADEMY OF MEDICINE SINGAPORE

COLLEGE OF OBSTETRICIANS & GYNAECOLOGISTS, SINGAPORE

INTRODUCTION

The lifetime prevalence of major depression and generalized anxiety disorder has been found to be 7.7-9.2% and 1.9-2.2% amongst women of childbearing age (Subramaniam et al 2020, Singapore Mental Health Study), whilst antepartum depressive states (both major and minor) occur in 12.2% and postpartum depressive states in 6.8% (Chee et al 2006). The neurodevelopmental impact of depression and anxiety on the growing fetus has been clearly evidenced in the Singapore population (GUSTO birth cohort study), with changes in microstructure, functional connectivity as well as epigenetic footprint. The adverse impact extends into the postpartum period, during which maternal depression and anxiety have been found to be associated with infant negative temperament, reduced maternal sensitivity, child behavioural problems, and decreased school readiness (www.gusto.sg). Given that preconception mental health has been found to be closely related to antenatal mental health, which in turn predicts postnatal mental health, there is a crucial need for early identification and intervention to ensure the best health outcomes for women and children. These guidelines have been developed to provide guidance on addressing depression and anxiety, during the preconception, antepartum and postpartum phases.

AIM OF GUIDELINE

Target audience: GPs, Fam Med/ PHPs, OGYN, Paeds, Nursing, mental health professionals

We aim to make this document readable to the wider public and non-healthcare lay community, as awareness and public education is a key factor to addressing maternal mental health at the population level.

This guideline does not include the severe mental disorders such as schizophrenic and bipolar disorders, which will be covered in subsequent editions.

1. ADDRESSING PRECONCEPTION DEPRESSION AND ANXIETY

1.1 Advice on pregnancy planning

i) Consider pregnancy prevention or contraception for women and girls of childbearing potential with a past or current depressive or anxiety disorder as they are particularly vulnerable to the stress of an unplanned pregnancy.

ii) Consider any previous history of depression or anxiety, as this is a well-established risk factor for antenatal depression or anxiety (Biaggi 2016).

iii) Plan well for pregnancy, as pregnancy unintendedness is a risk factor associated with perinatal depression (Abajobir et al, 2016)

1.2 Preconception counselling on impact of maternal mental illness and treatment

i) Provide information to women of childbearing potential with a severe depressive or anxiety disorder regarding how their mental health condition and its treatment might affect them or their baby if they become pregnant(McCloskey et al, 2020).

ii) Tailor this this information according to their individual needs, and illness pattern.

iii) With information, women can make an informed decision about family planning, and make necessary arrangements to prepare for pregnancy. (McCloskey et al, 2020)

1.3 Lifestyle adjustments to optimize preconception mental health

i) Provide guidance to women of childbearing potential with pre-existing depressive or anxiety disorder to help them make lifestyle adjustments to optimize their mental wellbeing and general health (van Lee et al, 2022).

ii) Recommendations include improving nutrition with whole foods diet, weight management, smoking cessation, alcohol abstinence and folate supplementation to promote maternal mental wellbeing, and fetal development. Physical activity, exercise and mindfulness practice can also help reduce symptoms of depression or anxiety and promote wellbeing. (Dennis et al, 2022)

1.4 Medication use in consideration of childbearing

i) Consider carefully safe choices of psychotropic medication or mood stabilizer, particularly valproate, for women or girls of childbearing potential who might require long-term treatment for their mood disorder (UK Nice guidelines).

ii) Restrict the use of valproate to when there are no effective or tolerated alternatives, and when pregnancy prevention plan is adequate, as valproate is teratogenic. (Shakespeare & Sisodiya 2020)

1.5 Holistic approach to preconception mental health

i) Consider psychological therapies, and address social stressors, to optimize the control of pre-existing depressive or anxiety disorder, as this can help to minimize the dose of antidepressant medication needed; any cessation should be discussed in preconception care planning.

ii) Aim to achieve minimum effective dose of psychotropic medication to maintain wellness during conception. Maternal mental health state tends to remain stable from preconception to pregnancy (Kee et al 2021).

iii) Addressing any conflicts can ameliorate the risk of depression perinatally as couple relationship strength is particularly important - (Westdhal et al 2012).

2. ADDRESSING ANTENATAL DEPRESSION AND ANXIETY

2.1. Screening for antenatal depression/anxiety

i) Early screening for antenatal depression during obstetric visits provides an ideal opportunity for preventative care and treatment before delivery (Marcus et al, 2003).

ii) A short screen such as the Patient Health Questionnaire PHQ-2 may be used:

"Over the last 2 weeks, how often have you been bothered by:

- *Little interest or pleasure in doing things?*
- *Feeling down, depressed or hopeless?"*

Women who experience either/both symptoms for most days, can be considered screen-positive, and will benefit from support or referral for further assessment. (see Appendix 1 for full version of PHQ-2)

iii) Women may also be screened using a validated questionnaire such as the Edinburgh Postnatal Depression Scale EPDS (Appendix 2), with follow-up actions according to clear referral and management protocols.

iv) Consider that antenatal depression is more common than postnatal depression (Chee et al, 2005), and that antenatal depression and anxiety are significant risk factors for postnatal depression (M.N., Norhayati, W.M.A., Wan Emilin, 2015)

v) Consider using Generalized Anxiety Disorder 2-item (GAD-2) with further assessment to follow, but take note that there is currently no robust evidence for a reliable screening tool for antenatal anxiety. (Appendix 3)

2.2. Assessment of antenatal depression/anxiety

i) Clinical diagnoses should be made based on criteria listed in DSM-5 or ICD-10.

ii) Consider holistic aspects of care such as: other psychiatric co-morbidities (such as learning disability, alcohol and substance use disorders), medical and obstetric health, quality of partner and other familial relationships, care of older children, financial and occupational stressors, lifestyle practices, bonding with unborn child

iii) Consider assessing for risk of harm to self and others (including fetus). (NICE, 2015)

2.3. Medication use in antenatal depression/ anxiety

i) Antidepressants are recommended for women with moderate to severe illness, or at risk of clinically significant relapse, with careful consideration of potential benefits and risks of antenatal use of antidepressants (Yonkers et al, 2009)

ii) Factors to consider include: symptom severity, risk of relapse/ worsening, impact of illness vs. medication on mother and fetus, patient's response to previous treatment, stage of pregnancy, patient preference (Yonkers et al, 2009)

iii) Clinicians should provide information regarding the risk of septal defects with selective serotonin reuptake inhibitors, particularly Paroxetine, and discuss risk-benefit considerations. (Molenaar et al. 2018)

iv) Good practices for prescribing safely include: lowest effective doses, divided over the day if necessary, avoiding first-trimester use if possible, frequent and regular reviews. (NICE, 2014)

2.4. Holistic approach to care for patients with antenatal depression/ anxiety

i) Care for women should be coordinated amongst relevant healthcare professionals, which may include general and family medicine practitioners, obstetricians and gynecologists, pediatricians, psychiatrists, nurses, counsellors, social workers and midwives (Donker et al. 2009).

ii) Having relevant mental health information enables women (and their partners/ family, with their agreement) to make informed, collaborative decisions about their care.

iii) Information should include potential benefits and side effects of treatment, consequences of untreated illness, which may include poor maternal health, lower quality of life, difficulties with social relationships, poor mother-infant bonding, and poor overall development of the infant. (Sioman et al. 2019)

iv) Lifestyle behavioural interventions targeting diet, sleep, physical activity, smoking and having social support helps to prevent and reduce antenatal depressive symptoms (van Lee et al, 2020)

v) Non-pharmacological interventions, such as supportive therapy, psychology therapy and group therapy, may be beneficial, in addition to pharmacological interventions. (Bowen et. al, 2014)

2.5. Monitoring and supporting women receiving care for antenatal depression/anxiety

i) Regular monitoring of symptoms and response to treatment during the antenatal period is recommended (NICE, 2014).

ii) Consider referral to perinatal psychiatric services at KKH, NUH, IMH for women with severe depression or anxiety, or those not responding to treatment.

iii) Having adequate social and emotional support from husbands/ partners (Dunkel S.C., 2011) and family in the antenatal period can help reduce depressive and anxiety symptoms (Spoozak et al, 2009).

3. ADDRESSING POSTNATAL DEPRESSION AND ANXIETY

3.1. Screening for postnatal depression and anxiety:

i) Early screening for postnatal depression during obstetric visits provide an ideal opportunity for preventative care and treatment. (ACOG Committee Opinion, 2018; Chen 2011). Well child visits to the paediatrician or primary health practitioner are also an opportune time to screen the mother for postnatal depression (Earl 2010).

ii) Screening is particularly important for women with risk factors of postnatal depression and anxiety, which include antenatal depression/ anxiety, recent stressful life events and inadequate social support (Beck 2001)

iii) A short screen such as the Patient Health Questionnaire PHQ-2 may be used:

"Over the last 2 weeks, how often have you been bothered by:
Little interest or pleasure in doing things?
Feeling down, depressed or hopeless?"

Women who experience either/both symptoms for most days, can be considered screen-positive, and will benefit from support or referral for further assessment. (see Appendix 1 for full version of PHQ-2)

iv) Women may also be screened using a validated questionnaire such as the Edinburgh Postnatal Depression Scale EPDS (Appendix 2), with follow-up actions according to clear referral and management protocols.

v) Consider using Generalized Anxiety Disorder 2-item (GAD-2) with further assessment to follow, but take note that there is currently no robust evidence for a reliable screening tool for postnatal anxiety. (Appendix 3)

3.2. Assessment of postnatal depression and anxiety:

i) Clinical diagnoses should be made based on criteria listed in DSM-5 or ICD-10

ii) Consider holistic aspects of care such as: other psychiatric co-morbidities (such as learning disability, alcohol and substance use disorders), medical and obstetric health, quality of partner and other familial relationships, care of older children, financial and occupational stressors, lifestyle practices, bonding with baby.

iii) Consider assessing for risk of harm to self and others (including baby).

3.3. Medication use in postnatal depression/ anxiety

i) Provide counselling on the risk and benefits of starting pharmacological treatment, including potential consequences of untreated depression/ anxiety and adverse side effects of antidepressants. (Brown et al. 2021)

ii) Provide support for women in their decision about breastfeeding and be aware that antidepressant use is not an absolute contraindication to breastfeeding. (Brown et al. 2021)

3.4. Holistic approach to care for patients with postnatal depression/ anxiety

i) Care for women should be coordinated amongst relevant healthcare professionals, which may include general and family medicine practitioners, obstetricians and gynecologists, pediatricians, psychiatrists, nurses, counsellors, social workers and midwives.

ii) Having relevant mental health information enables women (and their partners/ family, with their agreement) to make informed, collaborative decisions about their care (Donker et al. 2009)

iii) Information should include potential benefits and side effects of treatment, consequences of untreated illness, which may include poor maternal health, lower quality of life, difficulties with social relationships, poor mother-infant bonding, and poor overall development of the infant. (Slomian et al. 2019)

iv) Lifestyle advice such as those related to healthy eating, physical activity and sleep hygiene could be provided to women, in consideration of the adjustment of these activities during the postnatal period. (COPE 2018)

v) Supportive counselling or structured individual psychological intervention, such as cognitive behavioural therapy or interpersonal psychotherapy, may improve depressive symptoms. (NICE 2015, COPE 2017)

vi) Consider interventions to improve mother-baby bonding if there are concerns with their relationship as women with depressive symptoms may experience challenges with bonding. (NICE 2015)

3.5. Monitoring and supporting women receiving care for postnatal depression/anxiety

i) Regular monitoring of symptoms and response to treatment during the postnatal period is recommended.

ii) Consider referral to perinatal psychiatric services at KKH, NUH, IMH for women with severe depression or anxiety, or those not responding to treatment.

iii) Having adequate social and emotional support from husbands/ partners and family in the postnatal period can help reduce depressive and anxiety symptoms. (Machado et al. 2020)

SPECIAL CONSIDERATIONS

Women who have experienced a severe maternal event - such as hemorrhage requiring massive transfusion and/or hysterectomy, severe hypertensive crises, eclamptic seizures, sepsis, thrombotic events and cardiovascular failure, stillbirth or intrauterine death – are particularly at risk of depression and anxiety, as well as post-traumatic stress disorder. (Furuta et al, BMC Pregnancy and Childbirth 2014) Care and support should be provided for the patient, as well as the healthcare providers, who might experience emotional effects of severe adverse events (Morton et al, JOGNN 2021).

Women with special needs will benefit from care delivery that is tailored to address their needs (D'Angelo et al, 2020). Likewise, pregnant adolescents can be at higher risk of perinatal depression (Siegel & Brandon, 2014). Additional effort to provide information and support for these vulnerable mothers can mitigate the development of depression and anxiety in their perinatal experience.

Infant neurodevelopment is related to the quality of caregiving. Maternal mental health can influence maternal attunement and sensitivity to infant needs (Rifkin-Gabroi et al, 2015), and maternal mind-mindedness(Bigelow et al, 2018). Mothers are encouraged to spend quality time attending to and caring for their infants, by following baby's cues and keeping mindful of baby's needs. Research shows that mothers staying present, watching and wondering about their infants can improve maternal reflective capacity (Bakermans-kranenburg et al, 2003). Red flags for dysfunction in mother-infant dyads include reduced maternal attunement, reduced child responsiveness to mother and restricted growth and development (Tsang et al, 2019).

REFERENCES

1. Subramaniam M, Abdin E, Vaingankar JA, Shafie S et al. Tracking the mental health of a nation: prevalence and correlates of mental disorder in the second Singapore mental health study. Epidemiol Psychiatr Sci 2020, doi: 10.1017/S2045796019000179; PMID 30947763

   Level III evidence (cross-sectional population survey)

2. Chee CYI, Lee DTS, Chong YS, Tan KL, Ng TP, Fones CSL. Confinement and other psychosocial factors in perinatal depression : a transcultural study in Singapore. J Affect Disord 2005 Dec; 89(1-3) 157-66. doi:10.1016/j.jad.2005.09.004. PMID 16257451

   Level III evidence (cross-sectional study)

3. Biaggi A, Conroy S, Pawlby S, Pariante CM. Identifying the women at risk of antenatal anxiety and depression: A systematic review**.** J Affect Disord 2016 Feb;191:62-77; doi: 10.1016/j.jad.2015.11.014; PMID 26650969.

   Level II evidence (systematic review)

4. Abajobir AA, Maravilla JC, Alati R, Najman JM. A systematic review and meta-analysis of the association between unintended pregnancy and perinatal depression. J Affect Disord 2016 Mar 1; 192:56-63; doi: 10.1016/j.jad/2015.12.008; PMID 26707348.

   Level II evidence (systematic review; not involving RCTs)

5. Mcloskey LR, Wisner KL, Cattan MK, Betcher HK, Stika CS, Kiley JW. Contraception for women with psychiatric disorders. Am J Psych 2021 Mar; 178(3):247-255; doi: 10.1176/appi.ajp.2020.20020154.

   Level II evidence (systematic review)

6. Dennis CL, Brown HK, Brennenstuhl S, Vigod S, Miller A, Castro RA. Preconception risk factors and health care needs of pregnancy-planning women and men with a lifetime history or current mental illness : a nationwide survey. PLOS One 2022 17(6); e0270158; doi:10.1371/journal.pone.0279158

   Level II evidence (cross-sectional survey)

7. Shakespeare J, Sisodiya SM. Royal College of General Practitioners Guidance document on valproate use in women and girls of childbearing years. 2020 Dec Version 2

   Level IV evidence (expert opinion)

8. UK National Institute of Health and Care Excellence Guidelines on Antenatal and postnatal mental health: clinical management and service guideline. Published December 2014, updated Feb 2020; 1.2.2 Considerations for women with childbearing potential**;** www.nice.org.uk/guidance/cg192

   Level IV evidence (expert opinion)

9. Kee MZL, Ponmudi S, Phua DY, Rifkin-Gabroi A, Chong YS, Tan KH, Chan JKY, Broekman BFP, Meaney MJ. Preconception origins of perinatal maternal mental health. Arch Womens Ment Health 202a Aug;24(4):605-618. doi: 10.1007/s00737-020-01096-y; PMID 33486655;

   Level II evidence (cohort study)

10. Westdahl C, Milan S, Magriples U, Kershaw TS, Schindler Rising S, Ickovics JR. Social Support and Social Conflict as Predictors of Prenatal Depression. Obstet Gynecol. 2007 Jul; 110(1): 134–140. doi: 10.1097/01.AOG.0000265352.61822.1b; PMID: 17601908.

Level II evidence (cohort study)

11. Van Lee L, Chia A, Phua D, et al. Multiple modifiable lifestyle factors and the risk of perinatal depression during pregnancy: Findings from the GUSTO cohort. Compr. Psychiatry 103 (2020) 152210.

Level II (Evidence cohort study)

12. UK National Institute of Health and Care Excellence Guidelines on Antenatal and postnatal mental health: clinical management and service guideline. Published December 2014, updated Feb 2020

Level IV (Expert opinion)

13. COPE (Oct 2017) Mental Health Care in the Perinatal Period. Australian Clinical Practice Guideline. Australia: National Health and Medical Research Council.

Level IV (Expert opinion)

14. Yonkers KA, Wisner KL, Steward DE, et al. (2009) Depression during pregnancy: Treatment recommendations. Washington, DC: American College of Obstetricians and Gynecologists and American Psychiatric Association

Level IV (Expert opinion)

15. NVOG (2012) SSRI-Gebruik in de Zwangerschap en Tijdens de Lactatie. *Nederlandse Vereniging voor Obstetrie and Gynaecologie*

Level IV (Expert opinion)

16. Molenaar NM, Kamperman AM, Boyce P, et al. Guidelines on treatment of perinatal depression with antidepressants: an international review. Aust NZ J Psychiatry 2018; 52(4): 320-27

Level IV (Expert opinion)

17. MacQueen GM, Frey BN, Ismail Z, et al. Canadian Network for Mood and Anxiety Treatments (CANMAT) 2016 clinical guidelines for the management of adults with major depressive disorder: Section 6. Special Populations: Youth, women, and the elderly. Can J Psychiatry 2016; Vol. 61(9): 588-603

Level IV (Expert opinion)

18. Yonkers KA, Wisner KL, Stewart DE, et al. The management of depression during pregnancy: a report from the American Psychiatric Association and the American College of Obstetricians and Gynecologists. Gen Hosp Psychiatry 2009; 31: 403-413

Level IV (Expert opinion)

19. Austin MV, Middleton P, Reilly NM. Detection and management of mood disorders in the maternity setting: The Australian Clinical Practice Guidelines. Women and Birth 2013; 26: 2-9

Level IV (Expert opinion)

20. Marcus SM, Flynn HA et al (2003) Depressive symptoms among pregnant women screened in obstetrics settings. J Womens Health 12(4):373–380

Level IV (Cross-sectional study)

21. M.N., Norhayati, W.M.A., Wan Emilin (2015). Magnitude and risk factors for postpartum symptoms: A literature review. Journal of Affective Disorders, Volume 175, 1 April 2015, Pages 34-52.

Level IV (Systematic review of descriptive studies)

22. Spoozak L, Gotman N, Smith, MV, Belanger K, Yonkers KA. Evaluation of a social support measure that may indicate risk of depression during pregnancy. J affect Disord. 2009; 114:216-23

Level III (Cross-sectional study)

23. Donker, T., Griffiths, K.M., Cuijpers, P. *et al* (2009). Psychoeducation for depression, anxiety and psychological distress: a meta-analysis. *BMC Med* 7**,** 79.

Level I (Systematic review of RCT)

24. Slomian, J., Honvo, G., Emonts, P., Reginster, J. Y., & Bruyère, O. (2019). Consequences of maternal postpartum depression: A systematic review of maternal and infant outcomes. *Women's Health*, *15*, 1745506519844044.

Level II (Systematic review of descriptive studies)

25. Dunkel Schetter C. Psychological science on pregnancy: stress processes, biopsychosocial models, and emerging research issues. Annu Rev Psychol. 2011; 62:531–58.

Level IV (Narrative review)

26. Angela Bowen, Marilyn Baetz, Laura Schwartz, Lloyd Balbuena, Nazeem Muhajarine. Antenatal group therapy improves worry and depression symptoms. 2014. Isr J Psychiatry Relat Sci 51 (3), 226-231, 2014

Level II (Case control study)

27. ACOG Committee Opinion No. 736. Optimizing postpartum care.. American Colleage of Obstetricians and Gynecologists. Obstet Gynecol 2018; 131:e140-50.

Level IV (**Expert opinion**)

28. Chen H. Addressing maternal mental health needs in Singapore. Psychiatric Services Frontline Reports 2011; 62(1):102.

29. Earls MF (2010) Committee on Psychosocial Aspects of Child and Family Health American Academy of Pediatrics. Incorporating recognition and management of perinatal and postpartum depression into pediatric practice. Pediatrics 2010; 126:1032-9.

Level IV (**Expert opinion)**

30. Beck CT. Predictors of Postpartum Depression: An Update. Nurs Research. 2001 Sep/Oct; 50(5):275-285.

Level II (Meta-analysis of descriptive studies)

31. Brown, J. V. E., Wilson, C. A., Ayre, K., Robertson, L., South, E., Molyneaux, E. & Khalifeh, H. (2021). Antidepressant treatment for postnatal depression. *Cochrane Database of Systematic Reviews* 2021, (2).

Level II (Systematic review of descriptive studies)

32. Donker, T., Griffiths, K.M., Cuijpers, P. *et al* (2009). Psychoeducation for depression, anxiety and psychological distress: a meta-analysis. *BMC Med* **7,** 79.

Level I (Systematic review of RCT)

33. Slomian, J., Honvo, G., Emonts, P., Reginster, J. Y., & Bruyère, O. (2019). Consequences of maternal postpartum depression: A systematic review of maternal and infant outcomes. *Women's Health*, *15*, 1745506519844044.

Level II (Systematic review of descriptive studies)

34. Machado, T. D. S., Chur-Hansen, A. & Due, C. (2020). First-time mothers' perceptions of social support: Recommendations for best practice. *Health Psychology Open.* 7(1):1–10.

Level II (Systematic review of descriptive studies)

35. Furuta, M., Sandall, J., Cooper, D., & Bick, D. (2014). The relationship between severe maternal morbidity and psychological health symptoms at 6–8 weeks postpartum: A prospective cohort study in one English maternity unit. BMC Pregnancy & Childbirth, 14, Article 133. doi.org/10.1186/1471-2393-14-133

Level II (Cohort study)

36. Morton CH, Hall MF, Shaefer SJM, Karsnitz D, Pratt SD, Klassen M, Semenuk K, Chazotte C. (2021). National Partnership for Maternal Safety: Consensus Bundle on Support After a Severe Maternal Event. JOGNN; 50:88-101

Level IV (Expert Opinion)

37. D'Angelo A, Ceccanti M, Fiore M, Petrella C, Greco A, Porrari R, Gencarelli, Ralli M et al (2020). Pregnancy in women with physical and intellectual disability: psychiatric implications. Rivista di Psichiatria 55(6): 331-336. doi.10.1708/3403.34890.

Level IV (Expert Opinion)

38. Seigel RS, Brandon AR. (2014). Adolescents, pregnancy and mental health. J Pediatric & Adolescent Gynecology; 27(3):138-50; doi:10.1016/j.jpag.2013.09.008.

Level II (Review)

39. Rifkin-Gabroi A, Kong L, Sanmugam S, Broekman BPF, Chen H, Wong E, Kwek K, Saw S-M, Chong YS, Gluckman PD, Fortier MV, Pederson D, Meaney MJ, Qiu A (2015). Maternal sensitivity, infant limbic structure volume and functional connectivity: a preliminary study. Translational Psychiatry 5,e668; doi:10.1038/tp.2015.133

Level II (Cohort study)

40. Bigelow A, Beebe B, Power M, Stafford AL, Ewing J, Egleson A, Kaminer T (2018). Longitudinal relations among maternal depressive symptoms, maternal mind-mindedness, and infant attachment behaviour. Infant Behaviour and Development. 51: 33-44.

Level II (Cohort study)

41. Bakermans-Kranenburg M, van IJzendoorn MH, Juffer F (2003). Less is More : Meta-analyses of sensitivity and attachment interventions in Early Childhood. Psychological Bulletin 129(2):195-215

Level I (Metanalyses)

42. Tsang LPM, Ng DCC, Chan YH, Chen HY (2019). Caring for the mother-child dyad as a family physician. Singapore Medical Journal 60(10): 497-501.

Level III (Case report)

CO-AUTHORS

Correspondence and Chief of Panel	
(1) A/Prof Helen Chen Yu *MBBS, MMed (Psychiatry), Grad Dip Psychotherapy(dynamic)*	Senior Consultant Psychiatrist & Head Department of Psychological Medicine Women's and Children's Hospital Duke-National University of Singapore
Co-Authors	
(2) Dr Chua Tze-Ern *MBBS, MMed (Psychiatry)*	Senior Consultant Psychiatrist & Head Women's Mental Wellness Service Department of Psychological Medicine KK Women's and Children's Hospital Duke-National University of Singapore
(3) Dr Theresa Lee *MBBS, MMed (Psychiatry), Grad Dip Psychotherapy(dynamic)*	Senior Consultant Women's Mental Wellness Service Department of Psychological Medicine KK Women's and Children's Hospital Duke-National University of Singapore
(4) Dr Elizabeth Siak Junpei *MBBS. MRCPsych(UK)*	Consultant Women's Mental Wellness Service Department of Psychological Medicine KK Women's and Children's Hospital Duke-National University of Singapore
(5) Dr Hong Lin Feng *MBBS(Australia). MRCPsych (UK),*	Senior Consultant Women's Mental Wellness Service Department of Psychological Medicine KK Women's and Children's Hospital Duke-National University of Singapore
(6) Ms Ch'ng Ying Chia *MA Applied Social Studies* *Grad Dip Counselling Practice* *Post Grad Dip Family Therapy & Systemic Practice*	Principal Clinical Counsellor Women's Mental Wellness Service Department of Psychological Medicine KK Women's and Children's Hospital Singapore
(7) Ms Yasmin Hassan *BA(Social Work with honours)* *Grad Dip Counselling Practice*	Senior Clinical Counsellor Women's Mental Wellness Service Department of Psychological Medicine KK Women's and Children's Hospital Singapore
(8) Dr Cornelia Chee Yin Ing *MBBS. MMed (Psychiatry)*	Senior Consultant & Head Department of Psychological Medicine National University Hospital Yong Loo Lin School of Medicine, NUS
(9) Dr Mok Yee Ming *MB BCh BAO(Dublin),* *MMed (Psychiatry), Grad Dip(Psychotherapy)*	Senior Consultant, Chief (Mood & Anxiety) Assistant Chairman Medical Board (Clinical) Institute of Mental Health

(10) A/Prof Ong Say How *MBBS. MMed (Psychiatry)* *Grad Dip Psychotherapy, FAMS*	Senior Consultant, Chief Department of Developmental Psychiatry Institute of Mental Health
(11) Prof Victor Samuel Rajadurai *MBBS. MD(Paed),* *MRCP(UK Paed)*	Emeritus Consultant Department of Neonatology KK Women's and Children's Hospital
(12) Dr Teoh Tiong Ghee *MD, MSc, MRCPI, FRCOG*	Director, Maternal and Child Global Health and Care Transformation Senior Consultant Obstetrics & Gynaecology KK Women's and Children's Hospital
(13) Ms Vasuki Utravarthy *B Social Science with honours(NUS),* *MHealth Admin, MPublic Health(NUS)*	Director Outreach School Health & Outreach Division Health Promotion Board
(14) Prof Tan Kok Hian *MBBS. MMed (O&G), FRCOG, MBA*	Senior Consultant & Head Perinatal Audit & Epidemiology Obstetrics & Gynaecology KK Women's and Children's Hospital Duke-National University of Singapore
(15) A/Prof Tan Lay Kok *MBBS. MMed (O&G), FRCOG*	Senior Consultant, Head Department of Maternal Fetal Medicine Obstetrics & Gynaecology KK Women's and Children's Hospital

APPENDIX

APPENDIX 1

PATIENT HEALTH QUESTIONNAIRE 2-item (PHQ-2)

(Kroenke K, Spitzer RL, Williams JOB. The Patient Health Questionnaire-2: Validity of a Two-item Depression Screener. Medical Care, 2003:41:1284-92)

Over the last 2 weeks, how often have you been bothered by the following problems?

1. Little interest or pleasure in doing thing

Not at all	0
Several days	1
More than half the days	2
Nearly every day	3

2. Feeling down, depressed or hopeless

Not at all	0
Several days	1
More than half the days	2
Nearly every day	3

Interpretation:

- The authors have identified a score of 3 to be the optimal cut-off when using PHQ-2 to screen for major depression (or clinical depression.
- Patients who screen positive should be further evaluated and attended to accordingly.

EDINBURGH POSTNATAL DEPRESSION SCALE (EPDS)

(*Cox JL, Holden JM, Sagovsky R, British Journal of Psychiatry, June 1987, vol 150)*

1. I have been able to laugh and see the funny side of things in the past one week.

0 As much as I always could
1 Not quite so much now
2 Definitely not so much now
3 Not at all

2. I have looked forward with enjoyment to things in the past one week.

0 As much as I ever did
1 Rather less than I used to
2 Definitely less than I used to
3 Hardly at all

3. I have blamed myself unnecessarily when things went wrong in the past one week.

3 Yes, most of the time
2 Yes, some of the time
1 Not very often
0 No, never

4. I have been anxious or worried for no good reason in the past one week.

0 No, not at all
1 Hardly ever
2 Yes, sometimes
3 Yes, very often

5. I have felt scared or panicky for no very good reason in the past one week.

3 Yes, quite a lot
2 Yes, sometimes
1 No, not much
0 No, not at all

6. Things have been getting on top of me in the past one week.

3 Yes, most of the time I haven't been able to cope at all
2 Yes, sometimes I haven't been coping as well as usual
1 No, most of the time I have coped quite well
0 No, I have been coping as well as ever

7. I have been so unhappy that I have had difficulty sleeping in the past one week.

3 Yes, most of the time
2 Yes, sometimes
1 Not very often
0 No, not at all

8. I have felt sad or miserable in the past one week.

3 Yes, most of the time
2 Yes, quite often
1 Not very often
0 No, not at all

9. I have been so unhappy that I have been crying in the past one week.

3 Yes, most of the time
2 Yes, quite often
1 Only occasionally
0 No, never

10. I thought of harming myself has occurred to me in the past one week.

3 Yes, quite often
2 Sometimes
1 Hardly ever
0 Never

Screening is considered positive if one or more of the following is met:

- Total score 15 or more for antenatal depression
- Total score 13 or more for postnatal depression
- Item score of 1 or more on item 10

APPENDIX 3

GENERALIZED ANXIETY DISORDER 2-item (GAD-2)

(Kroenke K, Spitzer RL, Williams JB, Mohana PO, Lowe B. Anxiety disorders in primary care: prevalence, impairment, comorbidity, and detection. Ann Intern Med. 2006;146:317-325)

The brief General Anxiety Disorder 2-item (GAD-2) may be used to screen for symptoms of anxiety:

1. Over the last 2 weeks, how often have you been bothered by feeling nervous, anxious or on edge?

Not at all	0
Several days	1
More than half the days	2
Nearly every day	3

2. Over the last 2 weeks, how often have you been bothered by not being able to stop or control worrying?

Not at all	0
Several days	1
More than half the days	2
Nearly every day	3

Interpretation:
A score of 3 or more has been suggested to be suggestive of generalized anxiety, and further assessment is warranted.

**Please note that GAD-2 has not be validated in Singapore, and its psychometric properties as a screening tool for perinatal anxiety has not been strong (Fairbrother et al 2019; Nath et al 2018). As such, the use of GAD-2 for public health screening is not yet clear, and a positive screen should be followed by assessment if clinically indicated.*

PUBLISHED: FEBRUARY 2023

College of Obstetricians & Gynaecologists,
Singapore
Academy of Medicine, Singapore
81 Kim Keat Road
#11-00 NKF Centre
Singapore 328836