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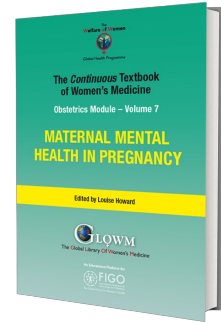
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MATERNAL MENTAL HEALTH IN PREGNANCY

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Chapter

High-risk Pregnancy due to Mental and Physical Co-morbidity

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INTRODUCTION

Increasing numbers of women, particularly in high- and middle-income country settings, have poorer health at pregnancy commencement. This is due to a range of factors including older maternal age at first pregnancy, an increase in the numbers of women who have overweight or obese body mass index (BMI) at pregnancy commencement, and more women who have pre-existing mental and/or physical health problems. The most recent UK confidential enquiry into maternal deaths reported that two-thirds (68%) of the women who died in 2014–16 had pre-existing medical problems and 24% pre-existing mental health problems.¹ More than a third (37%) of the women who died in this triennium had obese BMIs and 20% had overweight BMIs. Risk of maternal death was almost five-fold higher among women from black ethnic minority backgrounds compared with white women (RR 4.93; 95% CI 3.27–7.26).¹

Maternal pre-existing mental and/or physical problems are associated with a range of adverse birth outcomes for the woman and her infant, including pre-eclampsia, gestational diabetes, preterm delivery, macrosomia, and stillbirth.² Of concern is that some women may experience severe physical illness, for example sepsis or eclampsia, the signs and symptoms of which could lead clinicians to misdiagnose mental illness or, conversely, to miss severe mental health illness due to only considering a woman's physical health.³

A wide range of mental and physical health problems could potentially lead to an adverse pregnancy outcome, a

situation which may be compounded by a woman's social needs. One condition currently raising concerns due to increased prevalence, risk of adverse pregnancy outcome, and life-long impacts on maternal and child health, is obesity. This chapter specifically considers mental and physical co-morbidity among women who have obese BMIs (BMI ≥ 30 , Box 1) at pregnancy commencement. Some of the issues and practice recommendations described will be relevant for the management of a high-risk pregnancy due to other maternal co-morbidity, although it is important to note that 'risk' is a relative term. With tailored, planned multidisciplinary care, pregnant and postnatal women with mental and physical co-morbidity – and their infants – may remain well. Conversely, a woman who is initially well may develop health problems which could lead to poorer outcomes for herself or her infant, highlighting the importance of planned and effective antenatal, intrapartum and postnatal care.

Box 1 Adult body mass index (BMI)

BMI is calculated on an individual's weight divided by the square of height in meters

BMI ≤ 18.5 Underweight

BMI 18.5– ≤ 25 Normal

BMI 25.0– ≤ 30 Overweight

BMI ≥ 30 Obese

Obesity may be subdivided into:

Class 1 BMI 30– ≤ 35

Class 2 BMI 35– ≤ 40

Class 3 BMI ≥ 40

MATERNAL MENTAL AND PHYSICAL CO-MORBIDITY

Having a high BMI at pregnancy commencement is a risk factor for a number of adverse maternal and fetal outcomes including pre-eclampsia, gestational diabetes, increased labor interventions such as emergency cesarean birth, poor breastfeeding uptake, macrosomia and shorter breastfeeding duration.^{4,5} Alongside studies which have assessed consequences of higher BMIs on pregnancy outcomes, meta-analyses and reviews of maternal mental health problems in pregnancy have reported lower infant birth weight and premature birth among women who had antenatal depression,⁶ and low infant birth weight, preterm birth and intrauterine growth restriction among infants of women who had psychotic disorders, although studies in the latter case were often small and did not control for possible confounding factors.⁷ A retrospective cohort study from Canada which included data on over 70,000 women, considered the impact on a composite neonatal outcome including neonatal death, stillbirth, and preterm birth, of an obese BMI at pregnancy commencement *and* a mental health problem.⁸ Depression and higher pre-pregnancy BMI were independently associated with increased risk of adverse neonatal outcome, with the highest risk among women who had *both* a higher BMI and mental health problem, a risk which persisted after taking potential confounding factors into account.

Recent primary and secondary studies which explored mental health problems among women with overweight and obese BMIs found they were more likely to experience elevated anxiety and depression symptoms during and after pregnancy compared to women with normal BMIs.^{9,10,11} Reasons are varied and complex, but could reflect pre-pregnancy weight increase due to poor mental health, weight stigmatization, poor physical health due to pre-existing or pregnancy-related medical conditions such as gestational diabetes,⁹ or side-effects of anti-depressant or anti-psychotic medication.¹²

Other confounding factors for mental health problems and obesity could reflect a woman's socio-economic status, with women living in areas of higher socio-economic deprivation more likely to have poorer health, including higher BMIs, and poorer lifestyle behaviors such as increased tobacco smoking and alcohol intake.¹³ UK studies have found a significantly greater proportion of women from areas of high deprivation have weight management problems.¹⁴ This evidence, and analysis of longitudinal data from the UK Millennium Cohort Study which showed an association between first transition

into income poverty and risk of maternal and child mental health problems,¹⁵ highlights the need to develop interventions acceptable to women which take account of equity of access, timing and individual need. Policy recommendations from a review aimed at reducing health inequalities in the UK recognized the importance of pre-conception and postnatal interventions to reduce adverse pregnancy and infancy outcomes.¹⁶

Nevertheless, guidelines for 'high risk' conditions in pregnancy continue to segregate mental health from physical health needs of women. In the UK, NICE have published guidelines for a range of individual conditions women may experience in pregnancy, e.g. diabetes, hypertensive disorders, mental health,^{17,18,19} but offer scant consideration of the support and management required for women with mental *and* physical health conditions. On the contrary, NICE guidance for women with complex social factors in pregnancy recommends that women have a multiagency needs assessment resulting in a coordinated care plan.²⁰ The transferability of this approach to all women with multiple mental, physical and/or social needs should be considered.

WHY IS THIS IMPORTANT?

While much work undertaken to date has addressed the consequences of higher maternal BMIs at pregnancy commencement on the risk of physical *or* mental health problems, few studies have addressed co-morbidity, with planned, tailored management of physical and mental co-morbidity being relatively neglected by clinicians, healthcare providers, researchers, guideline and policy developers. Given the changing health of women who become pregnant, and consequences for maternal and infant health outcomes, it is imperative to consider implications for women with co-morbidity. As women with mental health problems who also have obese BMIs may also have poorer lifestyles, for example smoking, drug abuse and history of domestic violence,⁹ clinicians need to ensure social support as well as clinical history are elicited when women attend for antenatal and postnatal care, the perinatal period being an opportune time to promote positive health behaviors.

Key practice points for women with mental and physical co-morbidity

1. More women are commencing pregnancy in poor health due to high BMIs, and pre-existing medical conditions, including mental health problems
2. All health professionals providing maternity care should have an understanding of the risks of perinatal mental illness and higher maternal BMI for the woman and her infant
3. Pathways are needed that integrate care between maternity, physical and mental health specialists across primary and secondary care settings

DEFINING A HIGH-RISK PREGNANCY

Pregnancy is commonly defined as high risk if the health or life of the woman and/or her baby is threatened; however, despite the term 'high risk' being widely used in guidelines, policy, primary and secondary research studies, these sources tend to focus on risk as a consequence of a single condition, for example risk of hypertensive disorders of pregnancy,¹⁷ risk of premature birth²¹ or risk of post-traumatic stress disorder (PTSD) due to severe fear of childbirth.²² Furthermore, assessment of a woman's risk in pregnancy has tended to focus on data to predict birth outcomes and not considered risk as a continuum occurring before, during or after pregnancy.

UK NICE guidelines for routine antenatal care²³ recommend that women who present at pregnancy booking or during pregnancy with any medical condition, including psychiatric disorders which require medication, or high or low BMIs ($\leq 18.5 \text{ kg/m}^2$), cardiac disease, diabetes, renal disease, hepatic disease, some lifestyle and demographic factors (e.g. women who smoke, women aged over 40), vulnerable women (women aged under 18, women who lack social support), or those with high-risk previous pregnancies are likely to require additional maternity care (and are thereby defined as 'high risk'), but does not specify what should be the content of that care. Every woman should be appropriately assessed by the relevant members of the multidisciplinary team (MDT, see later in this chapter) at each antenatal contact, with

decisions about ongoing care based on individual needs and choices. As with high-risk pregnancy, there is a lack of a universal definition of low-risk pregnancy. Relevant guidelines define 'low risk' as a *woman who has an uncomplicated term singleton pregnancy with a vertex presentation who is expected to have an uncomplicated birth*,^{23,24} the emphasis again placed on birth outcome.

ANTENATAL CARE

All women at their first antenatal appointment should be asked about their current and previous health and obstetric history. This should include an assessment of their mental health, using a screening intervention such as the Whooley questions,¹⁸ outcomes of which will determine their pregnancy care plan, including need for referral for clinical assessment of diagnosis.

For women with obese BMIs who are known to have mental health problems at pregnancy commencement, it is important that the history, presentation, severity and pattern of symptoms is considered,¹⁸ to ensure care can be planned appropriately. For women identified with *new* mental health problems, it is important that their individual medical and immediate family (first-degree relative such as sister or mother) history of severe mental health, social circumstances, level of social support and history of domestic violence, are discussed to ensure referrals based on need are implemented.¹⁸ Although no clear etiological association has been identified linking pregnancy and mental health,¹⁸ a previous personal or family history of depression has been associated with development of depression following birth.²⁵ Having a stillbirth, infant complications or previous traumatic birth experience are associated with mental health problems, particularly PTSD.^{22,26,27} Emerging evidence that refugees, asylum seekers and trafficked pregnant women have increased risk of physical and mental co-morbidity^{28,29} emphasizes the importance of sensitive questioning about a woman's health and social circumstances at each contact.

The needs of those supporting women who have a mental health problem, i.e. her partner or other family members, should also be considered, and with the woman's agreement, they should be involved with decisions about her care.¹⁸ Women's perceptions of pregnancy risk due to their mental health and BMI should be discussed with them, as use of the term 'risk' could increase women's anxiety about their pregnancy, with evidence that women may not perceive risk in the same way as their healthcare providers.³⁰ In some situations, women may feel reluctant to admit to experiencing health problems because of fear or stigma about their mental health¹⁸ and/or concerns about health professionals' attitudes to their BMI.³¹

Referrals to appropriate members of the MDT should be based on initial and ongoing assessment, ensuring that this addresses identified co-morbidity, at all times ensuring women are met in a safe environment of care including access to appropriate medical equipment (such as larger blood pressure cuffs) for women with obese BMIs.³² The opportunity should be taken at each contact to ask women about other aspects of their general health and well-being, including healthy eating (ensuring women are aware that they do not need to 'eat for two' in pregnancy), with referral to a dietician if appropriate. As screening and diagnostic tests for structural and chromosomal anomalies in the fetus may be more difficult in pregnant women with obese BMIs, women should be counseled that screening for anomalies may be more limited.³² Women with higher BMIs have a three-fold risk of gestational diabetes compared to women who have normal BMIs,^{5,33} and should be screened and managed in accordance with relevant protocols and guidelines.¹⁹ Women should be offered information about symptoms of venous thrombosis embolism (VTE), as increased BMI will put women at higher risk of VTE development.

Recent trials of diet and weight management interventions in pregnancy have measured their impact on risk of gestational diabetes, having a large for gestational age infant, cesarean birth^{34,35} and maternal mental health³⁶ with limited evidence of effectiveness. In the UK, public health guidance for weight management before, during and after pregnancy recommends that dieting and weight loss during pregnancy should be avoided due to concerns about impact on neonatal outcomes,³⁷ although one large trial from Australia found no evidence of harm.³⁸ UPBEAT, a UK based multicenter trial of a behavioral intervention based on changing diet to foods with a lower glycemic index and increasing physical activity, aimed to reduce the risk of gestational diabetes and birth of large for gestational age infants.³⁵ Women

who had a BMI ≥ 30 kg/m² were recruited between 15 and 19 weeks' gestation, and followed up to 6 months postnatally to assess whether the intervention led to sustained dietary and physical activity change, but no differences in outcomes were found. Guidance on appropriate weight gain in pregnancy differs across country settings. For example, in the USA the Institute of Medicine³⁹ advise that women with BMIs of 30 or greater should aim for a pregnancy weight gain of 5–9.1 kg, but do not consider weight gain by obesity class. In UK settings in the absence of consensus on optimal gestational weight gain and until further evidence is available, discussing a healthy diet is recommended and more applicable than setting a prescribed weight gain target.³²

The UPBEAT research team also investigated whether elevated symptoms of depression predicted women's adherence to the intervention and trial outcomes.³⁶ Recruited women completed the Edinburgh Postnatal Depression Scale (EPDS) on trial entry and follow-up at 27–29 weeks' gestation. Gestational diabetes was assessed with an oral glucose tolerance test at 27–29 weeks' gestation. Adherence to the intervention was defined as receiving at least five of the eight intervention sessions. Women's gestational weight gain was calculated as the difference between pre-pregnancy weight and last measured weight at 34–36 weeks' gestation of pregnancy. Of 1526 women included in the analysis, 797 (52.2%) provided complete data. Of these women, 13.4% had elevated symptoms of antenatal depression at baseline, with no evidence for association between antenatal depression status and gestational diabetes (adjusted OR 0.80, 95% CI 0.52–1.22, $p = 0.30$), adherence adjusted (OR 1.16, 95% CI 0.63–2.15, $p = 0.63$) or gestational weight gain (adjusted regression coefficient 0.52, 95% CI –0.26–1.29, $p = 0.19$). Based on these findings, the researchers suggested that women with obese BMIs who have elevated symptoms of depression should not be excluded from lifestyle interventions.

Key practice points for pregnancy management

1. Clinicians planning women's antenatal care need to ensure mental and physical health needs are identified at pregnancy commencement, with referral pathways and care plans reviewed at each antenatal contact
2. A woman's history of mental health problems should include questions about severe perinatal mental health problems in a first-degree female relative
3. Clinicians need to be mindful of stigma women may feel as a consequence of their mental health needs and BMI, ensuring all communication is appropriate and sensitive to meet each individual women's needs
4. Women should be offered timely and sensitive counseling about screening and diagnostic tests for fetal anomalies
5. Those supporting women (partners, other family members) should, with the woman's support, be involved in decisions about the woman's care
6. Each woman should have her mental and physical well-being assessed at each antenatal contact, as well as her level of social support, to provide ongoing assessment of pregnancy risk, and the care plan discussed with her
7. Assessment of women with obese BMIs should adhere to current guidance inclusive of screening for possible complications, including gestational diabetes and VTE
8. Obese women who have elevated symptoms of depression should not be excluded from lifestyle interventions, which should include mental health promotion
9. If appropriate, refer women to sources of other information which could support them to manage their health, preferably to sites/sources which include mental and physical health. For example

<https://www.tommys.org/pregnancy-information/pregnancy-complications>

Recent guidance from the Royal College of Obstetricians and Gynaecologists (RCOG) on care of women with obese BMIs³² acknowledged the increased risk of mental health problems in women with BMIs ≥ 30 , but noted the lack of evidence of specific lifestyle interventions to prevent depression and anxiety in this population. Many guidelines recommend that women at higher risk of adverse pregnancy outcomes, regardless of condition of interest, are managed by the MDT.^{1,32} Although the role of the MDT is frequently recommended, current MDT provision in the UK is fragmented,⁴⁰ with a dearth of evidence of what an effective MDT should include for women who have medically complex pregnancies, including physical and mental co-morbidity.

Women with medically complex pregnancies are likely to benefit from ongoing continuity of midwifery care, although evidence is needed regarding which women and which models of midwifery care (midwifery continuity of care models,

caseload models or midwifery care shared with the obstetrician) are more likely to be effective across pregnancy, birth and the postpartum period. Around half of UK NHS maternity units which responded to a national survey by the Royal College of Midwives, offered specialist perinatal mental health midwife and/or midwifery team,⁴¹ with evidence needed of the extent to which teams are managing women with co-morbidity, including obese BMIs. If women have more than one health team involved, one identified individual should co-ordinate their care.¹

Key practice points for multidisciplinary team involvement

1. Evidence is needed of optimal MDT membership with respect to a woman and her partner/family, relevant clinicians, modes of integrated care and location, for women with high risk pregnancies
2. All women should have access to ongoing midwifery care, from a named midwife and/or a named midwifery team, with midwives included in the MDT. The midwives should establish links with the local specialist perinatal mental health team, as appropriate to meet women's needs
3. A named co-ordinator of the woman's care should be identified if women are receiving care from more than one healthcare team

LABOR AND BIRTH CARE

Women who have a high-risk pregnancy, but are currently well, could be on a low-risk clinical pathway, unless otherwise indicated, although will require regular monitoring by the MDT to ensure their health needs are regularly assessed. The woman's views and choices about birth mode should always be discussed with her, but a decision is likely to be influenced by the woman's overall health during pregnancy, her previous obstetric history, views about mode of birth, models of care available, and the advice and support of those managing her care. Guidance for labor and birth care includes recommendations specifically for women with obese BMIs or for women with mental health needs^{32,42} but not for labor and birth care among women with co-morbidity.

RCOG guidance³² includes a risk assessment for women with obese BMIs of ≥ 40 which incorporates an anesthetic assessment in pregnancy, consideration of tissue viability, and development of a labor and birth management plan which has been discussed with the woman and documented in her maternity notes. This guidance also recommends that women who are multiparous and otherwise low risk, are offered a choice of setting for birth in midwifery-led units, with clear referral pathways to the obstetric-led unit if complications arise, and active management of the third stage of labor instigated.

Guidance for women who have mental health needs recommend that the agreed care plan should describe the roles of those caring for the woman in labor, including the midwife (with provision of one to one care), the obstetrician, psychiatrist, mental health team, anesthetist and neonatologist /pediatrician.⁴² This should include clearly stated advice on whether women should continue to take prescribed psychotropic medication, with information on medication shared with the anesthetist and neonatologist.⁴²

The model of maternity care women with more complex health needs receive could influence their birth outcomes.⁴³ The Cochrane Library systematic review of midwife-led continuity of care models compared with other models of care for childbearing women included 15 trials with data on 17,674 women. Women classed as low risk in pregnancy cared for in midwifery-led continuity of care models during pregnancy, birth and the early postnatal period generally had better outcomes than low-risk women cared for in other models of care.⁴³ Women who received midwifery-led continuity of care were less likely to have epidural analgesia, episiotomy or instrumental births, less likely to experience preterm birth, and have a lower risk of losing their babies. In addition, women were more likely to be cared for in labor by midwives they already knew. No adverse effects compared with other models of care were identified. Of note is that the review data included women at low risk of complications as well as women at increased risk, who were not currently experiencing problems.

Place of birth should reflect the woman's choice, following discussion of intrapartum risks which may be associated with mental health problems and a high BMI. There is an increased risk of a woman with an obese BMI requiring planned or

emergency cesarean section birth, a risk which increases dose-dependently with increasing BMI.⁴⁴ RCOG guidance recommends women with BMIs of ≥ 35 kg/m² give birth in an obstetric-led unit.³²

Key practice points for labor and birth management

1. Risk assessment for women with obese BMIs of ≥ 40 should include anesthetic assessment in pregnancy, with a management plan for labor and birth discussed and documented, and tissue viability considered
2. Discussions about place of birth and model of maternity care for women with obese BMIs and mental health problems should be discussed with each woman, with the support of her partner and family, as appropriate
3. All women should have access to one to one midwifery care in labor
4. Women who have mental and physical co-morbidity should be aware of who will be caring for them in labor and during the birth, including the role of each healthcare professional
5. If women with mental health problems continue to take prescribed psychotropic medication, this information should be shared with the anesthetist and neonatologist. For women who have been advised to stop taking medication, plans for review of medication need should be discussed with the woman and all relevant MDT members

POSTNATAL CARE

Giving birth should be a positive and life-affirming experience for women, their partners and families, but for some women, the weeks and months following birth are a period of high anxiety and stress, compounded by having to cope with psychological and physical recovery from giving birth and the transition to parenthood. The postnatal period is currently defined as a period of six weeks from the birth,⁴⁵ the conclusion of which often includes contact with a healthcare professional (generally the woman's family doctor or obstetrician, depending on system and funding of care) who will discharge the woman from maternity care. An evidence base to support the definition of the postnatal period as 6 weeks from birth is lacking, and current arrangements appear to be more system than maternal health needs driven.⁴⁶

The changing health profile of women giving birth, as described earlier in this chapter, means that services and clinical training are unlikely to be fit for purpose. Postnatal care is neglected in terms of promoting appropriate planning and content, despite this being the time when maternal deaths are most likely to occur.^{1,45,46} In the UK where maternal deaths due to complications during or after pregnancy are low – fewer than 10 out of every 100,000 pregnant women – maternal suicide is the leading cause of direct maternal death during the first 12 months of birth,¹ with the majority of these deaths among women from white ethnic backgrounds. Clinicians in contact with women following birth should be particularly mindful of situations when a woman's mental health is deteriorating, if she reports increased use of alcohol and substance misuse or interpersonal violence,¹ with action taken to implement timely and appropriate intervention and support.

All women should be offered postnatal care, with planning for postnatal care ideally commencing in pregnancy.⁴⁷ For women with high-risk pregnancies, this should involve the appropriate members of the MDT to ensure maternal mental and physical health needs are considered, with relevant screening, referral pathways and social support needs considered. As so many women, even those with a high-risk pregnancy, have a short in-patient postnatal stay, it is imperative care plans are discussed with the woman, her partner and family, documented in records and relevant clinicians in primary and secondary care settings informed of plans. Care of the infant should also be considered at each postnatal contact, especially the woman's response to her infant, including her verbal interaction, emotional sensitivity and physical care.¹⁸ A member of the MDT (who could be a member of the mental health or maternity team) should also be nominated to provide on-going contact and co-ordination of the woman's postnatal care.

Postnatal plans may need to include support for recovery from cesarean section and/or other labor interventions, to check pain relief needs and surgical site wound healing. Women with obese BMIs have greater risk of developing wound complications following cesarean section birth, although the evidence to date is based on observational studies which used different definitions of infection, small sample sizes and the general obstetric population (rather than inclusion of only women with obese BMIs). Risk of developing surgical site infection appears to increase with increased BMI.

Robinson *et al.*⁴⁸ in a large 15-year population cohort study from Canada of pregnancy complications in obese and non-obese women, found women with obese BMIs had an increased risk of surgical site infection of 1.67 (95% CI 1.38–2.00) for moderate obesity (classed as 90–120 kg) and 4.79 (95% CI 3.30–6.95) for severe obesity (classed as >120 kg). Given the risk of infection, women with obese BMIs should receive prophylactic antibiotics at the time of surgery.³² If a woman has had a previous or current severe mental illness, or family history of severe perinatal mental illness in a first-degree relative, those caring for the woman should be alert to possible symptoms of postpartum psychosis during the first 2 weeks of the birth.¹⁸

Women with pre-existing diabetes, and those who developed gestational diabetes, or other pregnancy-related complications such as hypertensive disorders, should be monitored during and beyond the postnatal period in line with recommended national guidelines, including provision of lifestyle and weight management advice.^{19,32} RCOG and NICE guidance^{19,32} include that women with class 1 or higher level of obesity at pregnancy booking, should be offered nutritional advice after giving birth to support postnatal weight reduction but evidence of benefit is needed.

In addition to vigilance to onset of severe postnatal morbidity, evidence from large observational studies found that many women in the general obstetric population experience more common morbidity, such as perineal pain, backache, urinary and fecal incontinence, for months or even years following birth.^{49,50} All women should be asked at each contact about their health, including pre-existing and new onset mental and physical health problems.

Considerations for the woman's future health

Opportunities to support women with lifestyle changes which could improve their longer-term health, including outcomes of subsequent pregnancies, should be utilized. As described earlier in this chapter, dietary and lifestyle interventions during pregnancy which aimed to limit gestational weight gain, onset of gestational diabetes and reduce risk of birth interventions did not show any benefit.^{35,38} Greater attention is therefore needed to promote and support positive health and lifestyle change pre-conception (ideally before a woman's first pregnancy) and postpartum, particularly among women who have higher risk of poorer pregnancy outcomes.

This will require an integrated approach to risk assessment and prevention which takes account of personal, societal and cultural levels of influence.⁵¹ If outcomes for women who have mental and physical co-morbidity are to improve, clinicians will also need training to develop the appropriate skills and competencies to identify women at risk, and to know when and how to intervene appropriately. In the interim, greater support and resource to implement current policy and guideline recommendations which could improve women's mental and physical health are urgently needed.

Key practice points for postnatal care/pre-conception planning

1. Planning for postnatal care should commence in pregnancy. For women with high-risk pregnancies, this should involve all appropriate members of the MDT in primary and secondary care settings
2. Planning should include when it would be appropriate to discharge the woman from maternity care. Six weeks may be too soon for women to feel 'recovered' from the birth
3. More women die in the postnatal period than during pregnancy, meaning that clinicians, women and their families should remain highly vigilant to any change in a woman's mental or physical health, the urgency of the situation and who to contact
4. At each postnatal contact, it is important to assess the woman's relationship with her infant
5. If women have had a cesarean section, monitoring of the surgical site wound is important given increased risk of infection among women with obese BMIs
6. Women who have other pre-existing or pregnancy-related morbidity such as diabetes or hypertensive disorders of pregnancy should be managed in line with national and/or international guidance
7. Ask women about signs and symptoms of more common morbidity and advise as appropriate
8. Ensure women are aware of the importance of attending for their own health checks and other important contacts, including commencement of the infant immunization program
9. Women planning future pregnancies should be offered support with postnatal lifestyle behavior change which could reduce risk of adverse outcomes in a future pregnancy, and longer-term adverse health problems

INFANT FEEDING

Women who have had a high-risk pregnancy may face additional problems commencing and continuing to breastfeed, but with appropriate planning and support these could be prevented or minimized. Studies of women's infant feeding decisions have considered impact of physical *or* mental health problems on infant feeding decisions (including those associated with mode of birth), but not co-morbidity. Decisions to commence and continue to breastfeed are also highly associated with a woman's sociodemographic background, age, ethnicity and peer support network.⁵²

Studies which have explored breastfeeding among women with an obese BMI found that they are less likely to commence and continue to breastfeed than women with normal BMIs.^{53,54,55} Medical interventions during labor, including cesarean section, can impact on infant feeding decisions,^{56,57} with decisions influenced by post-operative pain, difficulties with mobilization following surgery^{58,59} and delayed onset of lactogenesis.⁶⁰

Breastfeeding from birth to 3 months or longer has been shown in some studies to significantly reduce postnatal depression and depressive symptoms.^{61,62} Conversely, women with negative early breastfeeding experiences were found in one observational study to be more likely to record higher scores (≥ 13) on the EPDS at 2 months postnatally.⁶³ Mechanisms underpinning associations between mental health and infant feeding decisions are complex and poorly understood, with research urgently needed.

Given evidence of impact on breastfeeding, women known to have mental health problems and higher BMIs, will need specialist advice during and after pregnancy on the benefits of breastfeeding for the woman and her infant, and on how to commence and maintain successful breastfeeding. As appropriate, the woman's partner, family and other potential peer supporters should be involved in discussions, as they too will need to be aware of breastfeeding benefits and how to support women. For women taking medication, for example psychotropic medication, NICE¹⁸ recommend that a full explanation of the benefits of breastfeeding, risks of taking psychotropic medication when breastfeeding, and risks of stopping medication to breastfeed should be provided to women. Women on other medication for mental health problems who wish to breastfeed should receive specialist advice on harms and benefits for the woman and/or for her infant.¹⁸ Decisions about medication management and breastfeeding for other health problems, for example diabetes or hypertensive disorders of pregnancy, should adhere to national/international guideline recommendations for postnatal follow-up and information about possible impacts on breastfeeding.

Key practice points to support infant feeding

1. Women with high-risk pregnancies require appropriate planning and support to prevent or minimize breastfeeding problems
2. Women with obese BMIs may be less likely to commence or continue to breastfeed, a decision which may be influenced by mode of birth
3. A woman's sociodemographic background, age, ethnicity and access to peer support may influence her decision to breastfeed or not
4. Mechanisms underpinning associations between mental health and infant feeding decisions are complex and poorly understood
5. Women taking medication for mental health problems should receive specialist advice if they wish to breastfeed, which should consider safety and benefits for the woman and her infant

CONCLUSION

This chapter has specifically focused on women who have a high-risk pregnancy as a result of a mental health problem and a higher BMI, both conditions associated with poorer outcomes for the woman and her infant. For health care professionals who provide care of women during and after pregnancy, initial contacts should include assessment of the woman's mental and physical health needs, resulting in the production of a coordinated care plan that brings together the relevant expertise and support required for that woman. This should be reviewed (and if necessary, updated) at all

subsequent contacts. For women who commence pregnancy with pre-existing co-morbidity, ensuring that care and referral pathways include the most appropriate members of the MDT, with ongoing discussion and communication with the woman and her family, the risk of poor outcomes could be minimized. As the evidence presented in this chapter highlights, approaches to effective management should not conclude with the birth – care should reflect ongoing, individually tailored care relevant to meet the woman's needs and ensure women understand implications for their own on-going health and the health of their infants. With appropriate expertise and effective pathways for integration of care from pre-pregnancy to postnatal period, and the commitment of healthcare professionals to 'make every contact count' (<https://www.makingeverycontactcount.co.uk/>), women with co-morbidities should have no greater risk of poor outcome than those without.

PRACTICE RECOMMENDATIONS

Practice Recommendations can be found at the end of each section above.

CONFLICTS OF INTEREST

The authors of this chapter declare that they have no interests that conflict with the contents of the chapter.

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