Eating Disorders in Pregnancy and Postpartum Period

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Maria Giulia Martini, Alessandra Bramante, and Nadia Micali

8.1 Eating Disorders (ED) in Pregnancy: Introduction

EDs are serious mental disorders characterized by severe disturbances in eating behaviours and distorted body image that considerably impair physical health and psychosocial functioning. The primary diagnosis classification of ED includes anorexia nervosa (AN), bulimia nervosa (BN) and binge eating disorder (BED) [1], and they typically develop in women during reproductive age [2].

A large body of evidence suggests that maternal ED is associated with adverse outcomes for the mother and the baby. Maternal AN, characterized by extremely low body weight and restriction of food intake, has been associated with intrauterine growth restriction, small for gestational age and low birth weight [3, 4], BN with induced labour and BED with larger birth weight and large for gestational age [4]. Drawing from the existing literature, Bulik et al. suggested a cycle of risk that may be playing in AN, whereby the maternal effect of AN on offspring via perinatal

M. G. Martini (✉)
Department of Psychological Medicine, Eating Disorders Research Unit, Institute of Psychiatry, Psychology and Neuroscience, King's College London, London, UK

Institute of Child Health, University College London, London, UK
e-mail: maria_giulia.martini@kcl.ac.uk

A. Bramante
Policentro Donna Ambulatory, Italian Marcé Society, Milan, Italy

N. Micali
Institute of Child Health, University College London, London, UK

Department of Psychiatry, University of Geneva, Geneva, Switzerland

Child and Adolescent Psychiatry Division, Department of Child and Adolescent Health, University Hospital Geneva, Geneva, Switzerland
e-mail: Nadia.Micali@hcuge.ch

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complications is hypothesized as being influenced by environmental, genetic and environmental factors that are highly influenced by maternal genotypes (i.e. pregnancy nutrition, weight gain in utero, appearance focus and restrictive eating during childhood/adolescence) [5]. In 2009, Micali and Treasure proposed a risk model for the impact of maternal ED on child development that embraces all ED focusing on in utero mechanisms. Specifically, the model described the effect of a maternal ED in pregnancy on the foetus via nutritional factors (i.e. protein deficiency, low folate and low iron intake) and comorbid psychopathology (i.e. comorbid anxiety and depression and in turn via increased glucocorticoids and corticotrophin-releasing hormone) leading to obstetric complications, which in turn predispose offspring to a later ED [6].

8.1.1 Current Prevalence

The estimated prevalence of ED during pregnancy varies considerably across studies, ranging from 0.6% to 27.8%. These rates differ depending on the characteristics of the sample (i.e. pregnancy stage), the component of ED being investigated (e.g. cognitive vs. affective vs. behavioural), the psychometric instrument employed (e.g. screening tool vs. self-report inventory vs. clinical interview) and the various instrument thresholds used to determine clinically significant scores [7]. Prevalence estimates for ED in pregnancy have ranged from 5.5 to 23.4% for shape and weight concerns, 0.3 to 2.5% for dietary restraint, and 8.4 to 36.1% for binge eating in the general population [8]. For women with a past diagnosis of ED, it has been estimated that, on average, 54% of women report improvement and even remission of ED symptoms during pregnancy. However, research has also identified a worsening of symptoms or emergence of new ED symptoms during pregnancy, particularly in association with binge eating behaviour [9, 10].

8.1.2 Behavioural Aspects

In terms of behavioural aspects of eating, pregnancy is associated with an overall improvement in the severity of ED behaviours for most women [11]. Reasons for the improvement in ED may include the relief of a sense of responsibility for body weight and shape and the woman's worries about its harmful effects on her unborn child. However, pregnancy might also be a trigger for the deterioration of binge eating and overeating. Ten percent of pregnant women with a recent ED report restrictive intake [12]. Reasons for the intensification of ED behaviours may include increased anxiety over weight gain. Furthermore, physiological changes in the course of pregnancy, such as changes in satiety associated with altered leptin levels, may have important influences on eating behaviour [13].

A qualitative study investigating possible factors responsible for the remission of ED symptoms seen during pregnancy in women with anorexia nervosa concluded

that there are likely three main categories of influence: biological (biological neuroendocrine changes during pregnancy are hypothesized to play a role in increasing the likelihood of high remission rates during pregnancy), psychological (women with anorexia nervosa reported a sense of maternal responsibility for recovery or a changed perception of their body during pregnancy) and social (pregnant women with anorexia nervosa reported greater support during pregnancy from the father of their child, family, friends and health care providers) [13].

Pregnant women with ED need enhanced perinatal and postnatal support. From a nutritional point of view, the latter is of great importance regarding (breast)feeding practices in women with ED [14].

8.1.3 Psychological Aspects

A recent review on women's experiences of pregnancy and ED found that women experienced turmoil related to fear and guilt about their changing body and the sense of self, wanting to be 'good mothers' and concern about how others would perceive their behaviour during pregnancy [15].

Common psychological presentations of ED in pregnant women are concern, distress or preoccupation with weight gain even when weight is within the expected range; dissatisfaction with body shape, even despite reassurance about expecting normal body shape changes with stages of pregnancy; negative or unusual attitudes towards food and/or eating; negative attitudes towards the unborn baby; depression; anxiety about pregnancy; and anxiety about caring for their baby.

It is important to remember that a woman with an ED may worry about how the ED might affect her unborn baby [11].

8.1.4 Comorbidity with Other Perinatal Psychopathology

A few studies have investigated levels of comorbid psychopathology during the perinatal period among women with ED. These studies show that pregnant women with ED may have an increased risk of comorbid psychiatric illnesses, particularly anxiety (in particular pregnancy-related anxieties, specifically for the well-being of their unborn child and weight gain during pregnancy), depression and obsessive–compulsive disorder [9, 16, 17]. Moreover, hormonal changes, body transformation and psychological adjustments during pregnancy have been linked to mood difficulties and ED [9].

Although it has been shown that anxiety generally precedes anorexia nervosa or bulimia nervosa onset, anxiety, depression and ED likely have common risk factors and similar underlying psychopathologic traits [17].

Carter et al. in 2003 found that 40% of women with ED also had a major depressive episode during the year of childbirth [12]. One large epidemiological study reported that women with a history of ED had increased levels of anxiety and depression during the antenatal and postnatal periods [17].

8.1.5 Risk Factors, Birth and Obstetric Outcomes

A large body of evidence has reported an increased risk of adverse pregnancy and neonatal outcomes for women with ED [18].

It is important for providers who care for women to understand the unique reproductive needs of women with ED and the gynaecological and obstetrical complications that may arise [13]. Endocrine abnormalities and intimate relationship problems associated with ED meant that a long-time pregnancy was believed to be a rare occurrence in this population. However, amenorrhea does not necessarily imply a lack of ovulation, and gestation can begin even at very low weight [11]. Due to having irregular menses, women with ED might have a strong belief that pregnancy is unlikely or impossible, and as a result, may be less vigilant about contraception. Failure to use contraception may lead to sexually transmitted infections in addition to an unplanned pregnancy. Moreover, if a patient does become pregnant when struggling with an active ED, she may be at higher risk for complications during pregnancy with a consequent negative impact on her child's development both in utero and in the postpartum period [14].

Large cohort studies and register data show that maternal ED behaviour and dysregulated body weight have detrimental effects on the course of pregnancy and birth outcomes. Pregnant women with an active ED are at increased risk of experiencing the following: antepartum haemorrhage, hyperemesis gravidarum, higher rates of miscarriage, caesarean sections and postpartum depression. The literature on foetal outcomes of women with ED displays lower and higher birth weights, intrauterine growth restriction, small head circumferences, neurobehavioral dysregulation early after birth, as well as premature deliveries, and perinatal mortality. Disturbances and dysfunctions related to nutrition and eating behaviours, which are core symptoms of ED, might contribute to these adverse pregnancy outcomes seen in women with ED [14].

Similarly, in a very large longitudinal cohort study, women with lifetime AN or AN + BN were more likely to have babies with restricted foetal growth, and acute maternal AN was associated with lower birth weight, length, head and abdominal circumference, ponderal index, and higher rates of preterm birth in offspring compared with unexposed women [19].

In an intergenerational study adjusting for grandmaternal pregnancy outcomes, Watson and colleagues found that irrespective of covariates, maternal AN was associated with smaller birth length, maternal BN with induced labour, and maternal BED with larger birth weight and being large for gestational age [4].

In summary, increased risk for pregnancy and obstetric complications can occur in women with ED, and the growth of their offspring (in utero) can be affected.

8.2 ED in Postpartum Period

8.2.1 Effect of ED on Postpartum Mothers

During the postpartum period, dissatisfaction with body weight and shape is common, even in women without a history of ED. In the first month after delivery, 75% of mothers report being concerned about their weight; by 4 months, 70% of women attempt to lose weight [20]. A study in a non-clinical population indicated that the percentage of women with ED nearly triplicates from pregnancy to the postpartum period [21]. Previous literature is consistent, indicating that the postpartum period is a high-risk time for relapse and exacerbation of ED symptomatology. Although during pregnancy women with ED seem to be more accepting of their body changes due to understanding that their body is serving the function of growing their child [22], during the postpartum women do not appear to be as accepting of body changes. Research has shown that relapse of symptoms and a return to baseline ED psychopathology levels is a common course in the first year postpartum [23], but the desire to lose weight can itself be a trigger for the development of an ED [24, 25].

Some studies have also explored comorbid psychopathology in women with ED. In a case–control study, Easter and colleagues found that ED symptoms during pregnancy predicted anxiety and depressive symptoms at 8 weeks and 6 months postpartum [16].

High levels of anxiety and depression were also identified at 8 months postpartum in a large prospective study of women with lifetime ED symptoms and active ED symptoms conducted by our group [17]. The prevalence of depressive symptoms in the above studies was consistent with earlier studies that have reported a prevalence of 30% in women with ED [12, 26, 27].

In summary, the above evidence suggests that the postpartum period is an extremely vulnerable window for women with past or current ED. Women are in fact prone to an exacerbation of ED symptomatology, with a particular increase in shape and weight concerns but are also more likely to develop comorbid anxious and depressive symptomatology.

8.2.2 Breastfeeding, Infant Feeding and Growth Trajectories

Given its relevance, the effect of maternal ED on a child's feeding and growth has received considerable attention in the literature. Infant feeding is one of the most important parental responsibilities and also one of the most important means of communication between the mother and the child. Research has shown that feeding difficulties starting early on in life can often persevere over the years and impact child and adolescent development and emotional well-being [28, 29]. Furthermore, children with feeding difficulties could be a major source of stress for families, which can worsen premorbid conditions such as depression and anxiety.

Numerous studies have examined breastfeeding patterns in mothers with ED, though findings are not consistent, possibly due to different study designs and populations [30, 31]. A large population-based study found a longer breastfeeding duration in mothers with ED, especially in mothers with BN [31]. Prolonged breastfeeding practice might in fact prevent from dysfunctional eating behaviours [32].

A similar study found a similar rate of initial breastfeeding practice in both the ED group and controls; however, mothers with ED were more likely to stop early [33]. On the contrary, Nguyen and colleagues stated that mothers with a history of ED were slightly less likely to initiate breastfeeding, although no longer significant after adjustment (socio-demographics, body mass index (BMI), maternal psychiatric symptoms) [34]. Despite feeding difficulties being common in infants, mothers with AN reported increased feeding difficulties, including exhaustion during feeding, slow feeding and no established routine [30, 31]. Infants of women with BN displayed higher levels of refusal to take solids compared to controls [31].

Body image distortion, a core symptom of both AN and BN, can also have an impact on feeding practices. In a study carried out by our group, mothers with both past and current ED expressed higher concerns about their infant being/becoming overweight compared with HC, respectively, at 8 weeks and 6 months postpartum only [35], which might have a direct effect on their child's dietary intake and in the severe case has been associated with reduction of their child's food intake and endorsement of dieting behaviours [36, 37].

Given the evidence of feeding difficulties amongst mothers with ED highlighted above, growth in children of mothers with ED remains an under-researched area. Although offspring weight and height are highly heritable, they can also be modified by environmental factors [4]. Preliminary evidence suggests that growth in children in mothers with ED may be affected. Maternal AN is associated with smaller weight at birth [22] and smaller birth length [4]. Some studies focused on the role of gender in the growth of children of mothers with ED. An early study conducted by Hodes and colleagues proposed that there was a gender influence with girls being more at risk of being underweight compared to boys [38]. However, the sample size in this study was small, and further investigation of the influence of gender on childhood growth is required.

In conclusion, research has demonstrated that children of mothers with ED tend to experience more difficulties in feeding their infants. Despite the literature on breastfeeding yielding mixed results, women with ED often experience difficulties with this. During toddler years, difficulties such as slow feeding, small quantity feeding and lack of established feeding routines appeared as common among ED mothers. Children of mothers with ED are at higher risk of displaying feeding difficulties compared to controls, dietary patterns deviating from norm and ED later in life. Most recent studies are consistent with earlier ones [26, 37, 39]. Future research should aim at exploring genotype-environmental interplay to provide new insights.

8.2.3 General Parenting

There is evidence that ED, like other psychiatric disorders, can impact general parenting abilities [28]. Women might struggle to integrate the demands of an ED and the challenges of motherhood. The ED itself can be time consuming; excessive preoccupation with food and weight and consequent compensatory behaviours can take up a substantial part of the day and impact sensitive responses to their child's needs [24]. In an early study, Stein and colleagues found that mothers with ED were more controlling and intrusive and engaged in more expressed emotions compared to controls during mealtimes and play [40]. In the same study, infants of mothers with ED displayed less positive effects with their mothers during feeding and play [40]. Likewise, mothers with lifetime ED in the Danish National Birth Cohort study reported greater difficulties in parenting their 18-month-old daughters and mothers with lifetime BN in looking after their children compared to controls [41]. Furthermore, a few studies have also shown that children of women with ED take the "carer role" including comforting their parents, monitoring their diet and cooking [28]. Ultimately, social factors such as unstable relationships and marital discord may also interfere with parenting function [42] and have implications for development in their offspring.

8.2.4 Parent–Child Bonding

Although limited literature explored mother–child interaction in ED mothers and their infants, preliminary results showed that maternal ED might affect mother–child interaction.

Research has shown that non-adequate parent–child relationships are potential risk factors for other psychopathological disorders later in life [43].

Mothers with ED report more problems in adapting to the new maternal role 3 months after delivery [44] and, as detailed above, are more prone to experience higher levels of anxiety and depression postnatally compared to controls [16]. ED mothers with comorbid depression and anxiety may have lower psychological resources to focus on their child, thus potentially decreasing the mother's ability to read the child's behavioural signals and to select and provide appropriate responses.

In a videotaped study of mother–child play interactions, children of mothers with ED were reported to be less involved and less responsive. Mothers were rated as less sensitive, more controlling and more hostile towards their children in comparison to the control group [45]. In the same study, they also found a correlation between maternal perceptions of a child's psychological problems and a decreased emotional availability in mother–child interactions [45].

In a review of literature on ED in the postpartum period, Astrachan-Fletcher and colleagues concluded that increased vulnerability to postnatal depression in

addition to body image concerns intensified by body changes that occurred during pregnancy might have a negative impact on mother–child relationship and consequently attachment in the postpartum period [24].

8.2.5 Barriers to Identifying ED during Pregnancy and the Postpartum Period

There are numerous potential barriers to the identification of eating disorders in pregnancy and the postnatal period. Evidence suggests that women with ED are frequently reluctant to disclose their illnesses to professionals [15]. Research showed that fear of being stigmatized, along with health care professionals' poor confidence to enquire and identify ED, has a major impact on women's disclosure of ED [46]. In a recent qualitative study aimed at exploring experiences of maternity care in women with ED, women expressed feeling shameful, embarrassed and feeling judged by health professionals based on their physical appearance. Women also reported a lack of opportunity and time to disclose an ED in a comfortable way and insufficient enquiry by health professionals. Other themes that emerged in the study were preference for self-management, current ED symptomatology and illness awareness [46].

Research demonstrated that the overarching factors that impact disclosure and barriers to accessing health care treatment for eating disorders are comparable amongst pregnant and non-pregnant women. These embrace the severity of the ED psychopathology, stigma of maternal ED, poor personal awareness of ED, and lack of knowledge amongst clinicians to identify an eating disorder. It is also important to note that while women with ED who are not pregnant may decide not to disclose and seek any medical treatment, pregnant women with ED are often already seeking care through a maternity care provider and may have frequent visits with a maternity care provider, thus providing multiple potential opportunities for disclosure [47].

8.3 Practical Issues: How to Best Support Women with ED During Pregnancy and Postpartum Period

ED in pregnancy and postpartum can negatively impact maternal and infant outcomes, as highlighted in the above sections. It is therefore of paramount importance that health professionals have the appropriate skills to assess and identify an ED in the early stages.

Below we summarize recommendations from NICE guidelines (NICE 2008, 2014, 2017) integrated with the most recent research:

1. Antenatal care should entail questions related to whether a person has ever suffered from an ED in the past (NICE 2014) and to identify those who might be at risk of relapse.

2. If a woman discloses a past or current ED, a referral for a full assessment and treatment within an ED service should be considered. It is also important to note that thresholds for referral to specialist services should be low in pregnancy and the postpartum period. Potential reasons for concerns are women being underweight (i.e. BMI below 19), failure to gain physiological weight during pregnancy, engaging in purging behaviours (i.e. vomiting, abuse of laxatives or diuretics), high preoccupation about her weight and shape and limited motivation to change.
3. A multidisciplinary approach to monitoring the mental and physical condition and antenatal care with clear and open communication between health professionals and women should be pursued (NICE 2008).
4. Pregnancy is a good window to offer treatment as motivation to change is likely to be high during this period.
5. Pregnant women with ED might need sensitive advice and increased support on how they plan to feed their babies, which may entail discussing the benefits of breastfeeding and practical advice on how to breastfeed (NICE 2008) whilst involving partners of the women since the beginning [48].
6. Having a discussion with a woman about her diet and her eating behaviours could be very beneficial. This could give the opportunity to address any concerns she may have, offer information on the benefits of a healthy balanced diet and deliver tailored advice on how to eat healthily during pregnancy and postnatally (see nutrition leaflets for women with eating disorders at http://www.eatingdisordersandpregnancy.co.uk/nutrition-leaflets-women/) [49].
7. Women with ED require higher levels of postnatal support in view of the higher vulnerability to develop postnatal depression and relapse of ED symptomatology.

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