Maternal Obesity From All Sides

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ABSTRACT

This column features excerpts from a recent series of articles from the Lamaze International research blog, *Science & Sensibility*. The eight-part series examined the issue of maternal obesity from various perspectives, incorporating writings from Kimmelin Hull, a physician assistant, a Lamaze Certified Childbirth Educator, and the community manager of *Science & Sensibility*; Kristen Montgomery, a nursing professor at the University of North Carolina–Charlotte; Pamela Vireday, a childbirth educator and blogger; and Kathleen Kendall-Tackett, a health psychologist, lactation consultant, and writer/speaker. The authors of the blog series, titled “Maternal Obesity from All Sides,” reviewed current research about risks associated with maternal obesity as well as the humanistic issues and lived experiences of pregnant women of size.

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Lamaze International's research blog, *Science & Sensibility*, is intended to help childbirth educators and other birth professionals gain the skills necessary to deconstruct the evidence related to current birth practices. Visit the Science & Sensibility Web site (<http://www.scienceandsensibility.org>) to stay up to date and comment on the latest evidence that supports natural, safe, and healthy birth practices.

NOTE FROM KIMMELIN HULL¹

In the United States, nearly 36% of adults are obese, including 1 out of 3 women (World Health Organization, 2011). The United Kingdom reports a similar

¹Kimmelin Hull is the community manager of *Science & Sensibility*, Lamaze International's research blog (<http://www.scienceandsensibility.org>) and the coordinator of the “Science & Sensibility” column published in *The Journal of Perinatal Education* (JPE). In this JPE issue's column, Hull reprints excerpts from a recent series of research reviews posted on *Science & Sensibility*. Following Hull's introductory note here, her transitional phrases and comments, which were not part of the original blog posts, are represented in italics, and ellipsis points indicate omitted material from the original blog posts.

rate, with 34% of adults considered obese, including 1 out of 5 women (Arrowsmith, Wray, & Quenby, 2011). Researchers also report that pregnant American women tend to be obese 18%–38% of the time (Galtier-Dereure, Boegner, & Bringer, 2000). Although less than a perfect means of communicating overall health status, the body mass index (BMI) calculation is internationally the primary method of determining weight status and, therefore, the categorization used in study groups for research that examines pregnancy and birth outcomes in women of different sizes (see Figure 1).

In June 2011, *Science & Sensibility*, Lamaze International's research blog, posted an eight-part

Figure 1. Body mass index (BMI) chart for adults 20 years old and older. Adapted from *Obesity and Cancer: Questions and Answers*, by the National Cancer Institute, 2004, retrieved from <http://www.cancer.gov/cancertopics/factsheet/Risk/obesity>

series devoted to the issue of maternal obesity. The authors of the series, titled “Maternal Obesity from All Sides,” reviewed current research about the risks associated with maternal obesity, as well as the humanistic issues and lived experiences of pregnant women of size. The series attempted to answer the question, “How do we tenderly care for pregnant women of size, acknowledge the data on risks associated with maternal overweight, and still support and honor normal birth whenever possible?” This article reprints excerpts from the series (adapted for publication in *The Journal of Perinatal Education*), which provide various perspectives from authors Kimmelin Hull, Kristen Montgomery, Kathleen Kendall-Tackett, and Pamela Vireday.

RISKS ASSOCIATED WITH MATERNAL OBESITY²

In the first blog post of Science & Sensibility’s eight-part series on maternal obesity, Kimmelin Hull presents a review and summary of the data related to perinatal risks associated with maternal obesity.

²Reprint of June 6, 2011, *Science & Sensibility* blog post by Kimmelin Hull at <http://www.scienceandsensibility.org/?p=2984>

... In Dr. Tahir Mahmood’s (2009) article, “Review: Obesity and Pregnancy: An Obstetrician’s View,” a compilation of statistics from 20 different articles provided an overview of some of the problematic conditions that can be associated with pregnancy in the overweight and obese population (e.g., preeclampsia, gestational hypertension, induced labor, and cesarean surgery). Additional concerns discussed in Mahmood’s article and in other recent literature include the following risks:

- Gestational diabetes (GD);
- Thromboembolism;
- Fetal macrosomia (birth weight > 4,000 g);
- Difficulty fighting postpartum infections;
- Maintained overweight/obesity between pregnancies;
- Prolongation of pregnancy/increased likelihood to give birth postdates;
- Other short- and long-term impacts on fetus/infant/child (e.g., neural tubes defects [NTDs] and lifetime increased risk of diabetes and obesity);
- Increased risk of stillbirth;
- Increased risk of maternal mortality; and
- Postpartum hemorrhage.

Complicating this issue beyond the fear factor of increasing a woman’s risk of, say, postpartum

hemorrhage or fetal loss is the fact that, statistically, the morbidities associated with maternal weight are less than a slam dunk. Although many women of size will go on to develop one or more of the aforementioned listed complications, some of these women will go on to experience completely normal pregnancies, labors, and births. At the same time, some normal or underweight women will go on to develop significant morbidities not typically associated with women boasting BMIs less than 25.

COMPLICATIONS OF MATERNAL OBESITY: A CLOSER LOOK³

By taking a closer look at some of the data in the next part of the series, Hull determined real number risks of purported complications and the fact that, although maternal obesity is statistically riskier than pregnancy experienced at “normal” weights, increased risk does not equate to inevitable outcome.

Gestational Diabetes

According to Dr. Mahmood’s (2009) review, the relative risk ratio of developing GD for an overweight woman is 1.7 compared with her normal weight counterpart. An obese woman has a 3.6 relative risk of developing GD compared with her normal weight counterpart. A meta-analysis by Chu et al. (2007) demonstrated similar results: Odds ratios for developing GD, compared with their normal weight counterparts, were 2.14 (overweight), 3.56 (obese), and 8.56 (morbidly obese). *A Cochrane Pocket Book: Pregnancy and Childbirth* (Hofmeyr et al., 2008) describes the incidence as affecting between 3% and 6% of pregnancies—that comes out to 30–60/1,000 women.

Fetal Macrosomia

Both GD and maternal overweight/obesity are predictors of fetal macrosomia, as described in a review article published in *BJOG: An International Journal of Obstetrics and Gynaecology* (Catalano & Ehrenberg, 2006). Unfortunately, suspected fetal macrosomia has been the impetus for elective induction—and, sometimes, elective cesarean surgery—when recent evidence does not support these practices.

In a cohort analysis of 11,681 births ($n = 8,379$ after inclusion criteria employed), the impact of maternal obesity on labor and birth was assessed (Beyer, Amari, Lüdders, Diedrich, & Weichert, 2011). The

study groups were broken into a control group (BMI of 18–24.9) and a test group (BMI ≥ 25). Results described a prolongation of labor of 1.6 hours between the normal weight and obese study participants, and newborn weight differences, as presented in Table 1.

Beyer et al.’s (2011) study deemed the differences in birth weights listed in Table 1 as “significant,” as well as other outcomes such as shoulder dystocia ($n = 4$ —or 0.1%—in the control group, and $n = 6$ —or 0.2%—in the test group) and primary cesarean surgery ($n = 975$ —or 21%—in the control group, and $n = 1,055$ —or 26%—in the test group). And yet, I am not sure that these numbers are significant enough to justify for all obese pregnant women an automatic labor induction or primary cesarean surgery because of a 0.1% increased risk of shoulder dystocia or a 5% increased likelihood that a secondary cesarean should come to pass.

A cohort study by Homer, Kurinczuk, Spark, Brocklehurst, and Knight (2011; $N = 591$) looking at outcomes for planned vaginal versus planned cesarean surgery in extremely obese women (BMI ≥ 50) in the United Kingdom came to a similar conclusion:

This study does not provide any evidence to support a policy of routine cesarean delivery for extremely obese women on the basis of concern of higher rates of delivery complications, but does support a policy of individualized decision making on mode of delivery based on a thorough assessment of potential risk factors for poor delivery outcomes. (p. 482)

... The Cochrane Collaboration weighs in on the issue of elective labor induction to get a baby who is expected to be growing too large for gestational age through and out: “Induction of labor for suspected fetal macrosomia is not supported with enough data to provide reliable evidence” (Hofmeyer et al., 2008, p. 222).

TABLE 1
Maternal Body Mass Index and Associated Newborn Weight

Group (mothers)	Weight (newborn)
Control (BMI 18–24.9)	3,413 g (7.52 lbs)
Overweight (BMI 25–29.9)	3,535 g (7.79 lbs)
Obese (BMI 30–34.9)	3,508 g (7.73 lbs)
Morbidly obese (BMI > 40)	3,682 g (8.11 lbs)

Note. BMI = body mass index. Adapted from “Obesity Decreases the Chance to Deliver Spontaneously,” by D. A. Beyer, F. Amari, D. W. Lüdders, K. Diedrich, and J. Weichert, 2011, *Archives of Gynecology and Obstetrics*, 283(5), 981–988. doi:10.1007/s00404-010-1502-5

³Reprint of June 7, 2011, *Science & Sensibility* blog post by Kimmelin Hull at <http://www.scienceandsensibility.org/?p=2999>

Statistically, most overweight and obese women *can* give birth to their babies vaginally. Barring particular medical complications suggesting otherwise, these mothers should be allowed to pursue a spontaneous birth if that is their wish.

Many studies anecdotally report high cesarean surgery and induction rates in overweight or obese women but do not relate the *reasons* for these outcomes. Is it possible that provider fear or bias comes into play when an obese woman's labor and birth draws near? Does the slightly longer labor length associated with obese women prompt clinicians to diagnose "failure to progress" sooner than is warranted?

MATERNAL OBESITY—HOW CAN PROVIDERS BEST COUNSEL PREGNANT WOMEN?⁴

Kristen Montgomery went forth in the "Maternal Obesity from All Sides" series to discuss counseling pregnant women of size about weight, lifestyle, and other factors that may or may not be related to obesity.

For women who are overweight or obese, it is important to convey the message that even small improvements in weight and physical activity/fitness can make a difference. Obese women do not need to lose all of their extra weight or start running marathons to see health improvements. Small amounts of weight loss contribute to improved health. Baby steps go a long way in getting women started to a healthier future.

In addition, women who are overweight or obese may have psychosocial symptoms. Research supports a link between psychosocial symptoms and women with an elevated baseline BMI (Block, He, Zaslavsky, Ding, & Ayanian, 2009). In women who were obese at baseline, life stressors such as inability to pay bills and relationship strains were associated with weight gain. Chronic stresses may hyperactivate the hypothalamic–pituitary axis, resulting in increased caloric intake and decreased physical activity (LaCoursiere, 2011). These factors can culminate in weight gain.

Women with obesity may experience stigmatization. Stigmatization may result in women having inadequate resources for support and this may impair an individual woman's ability to cope with stressful life events (LaCoursiere, 2011). Inadequate support may lead to comfort behaviors including increased eating and poor food choices. Childbirth educators and maternity care providers can put women in touch with

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support resources that may be available in their communities. In addition, classes tailored to obese women and their unique health needs may be viable in some communities where many obese clients are served.

RETHINKING THE OBESITY PARADIGM: AN INSIDER'S VIEW⁵

Important to this series of blog posts was the lived experiences of women of size, represented astutely by Pamela Vireday, a childbirth educator and the creator of TheWell-Rounded Mama blog. In her three-part contribution to the series, Vireday further examined related research and helped to put the numbers into perspective, along with offering suggestions of how to relay these numbers to pregnant women.

[One] problem with obesity public health campaigns is that they do not provide enough perspective regarding the risks. Mental inflation of risk occurs because many researchers use odds ratios instead of actual numerical risk. For example, some studies have found two to four times the risk for NTDs in obese and morbidly obese women. Sounds scary, doesn't it? Yet rarely do the studies or articles mention that double or even quadruple a very small risk (about one to two per thousand) is still a very small risk. Do the math. Even if there is an increased risk, less than 1% of obese women will probably have a baby with an NTD.

Odds ratios inflate the sense of risk while obscuring the fact that the actual numerical risk for a complication is relatively low. It does not mean that increased odds for a complication is meaningless; that *does* still have meaning and needs to be paid attention to. But it is important not to overreact to it either.

. . . Care providers ought to explain that when they say a certain group is more "at risk" for a certain complication, it does not mean that *all* or even a *majority* of the group will experience that complication nor does it predict *individual* outcome at all. Again, actual numerical estimates are helpful in putting the risk in perspective.

Visit Pamela Vireday's blog, The Well-Rounded Mama, at <http://www.wellrounded-mama.blogspot.com/>

⁴Reprint of June 9, 2011, *Science & Sensibility* blog post by Kristen Montgomery at <http://www.scienceandsensibility.org/?p=3048>

⁵Reprint of June 10, 2011, *Science & Sensibility* blog posted by Pamela Vireday at <http://www.scienceandsensibility.org/?p=3030>

It is important that care providers explain that when they say a certain group is more “at risk” for a certain complication, it does not mean that *all* or even a *majority* of the group will experience that complication, nor does it predict *individual* outcome at all.

So how does a care provider or childbirth educator discuss risk with a woman of size?

First, do not forget to mention that many women of size have normal pregnancies, births, and babies. This is information that is rarely mentioned but is deeply appreciated by women of size.

Second, compassionately present information about possible risks, using both odds ratios *and* actual numerical risks to place things in perspective.

Third, be sure to let the woman know that if she develops a complication, it does not mean she’s a “bad” mother, that there are treatments available to try to minimize problems associated with that complication, and that woman of all sizes experience complications.

Finally, emphasize the proactive things that women of size can do to minimize their risk of complications.

RETHINKING PREVENTION AND TREATMENT OF MATERNAL OBESITY⁶

Vireday proceeded, in her last contribution to the “Maternal Obesity from All Sides” series, to discuss alternative ways to minimize complications in pregnant and laboring women of size. Here are excerpts from Vireday’s list of preventative measures.

When researchers fixate on weight loss, weight gain restriction, and high-intervention care models as the *only* methods of preventing problems, they lose the opportunity to explore other sensible avenues of prevention.

The most basic way to improve outcome is to emphasize the importance of a preconception checkup to assess blood pressure, blood sugar, thyroid function, and prenatal vitamin/folic acid intake. These are vital because the most serious complications in obese women usually come from those with uncontrolled preexisting conditions (Lao, 2005; Moore, Singer, Bradlee, Rothman, & Milunsky, 2000).

... The importance of exercise is perhaps the most potent message for women of size to hear for minimizing complication rates. In one study, the risk

for GD in obese women was cut nearly in half by regular exercise (Dye, Knox, Artal, Aubry, & Wojtowycz, 1997). Some studies suggest it may lower the risk for preeclampsia as well (Sorensen et al., 2003). Studies in nonpregnant people show that exercise can improve health greatly, independent of weight loss.

... It has long been speculated that a higher dose of folic acid might lower the risk for birth defects in obese women, and some organizations recommend doing this (Wilson et al., 2007). Other resources recommend measuring red blood cell count folate concentration instead and giving additional supplementation only for those with low concentrations (Health Canada, 2010).

Some experts have also speculated that supplementation with higher doses of vitamin D before or during pregnancy might help prevent some cases of GD, hypertension disorders, and cesarean surgery. However, research so far has been mixed (Nassar, Halligan, Roberts, Morris, & Ashton, 2011).

... A tincture of patience in labor may be helpful, too. Many cesarean surgeries occur because of a “failure to wait” among care providers. Because obese women’s first stage of labor tends to be slower and because many care providers opt for cesareans more quickly in obese women, it is important to allow a truly adequate labor before opting for surgery (Abenhaim & Benjamin, 2011; Vahratian, Zhang, Troendle, Savitz, & Siega-Riz, 2004).

... Reexamination of surgical care regimens may also improve outcomes in obese women who do have cesarean surgery. For example, many clinicians were taught to use vertical incisions and subcutaneous drains in cesarean surgery in very obese women, but recent research finds these actually increase the risk of wound complications strongly. Additionally, a higher dose of antibiotics may be needed in morbidly obese women, and those who develop infections may benefit from extended treatment with more frequent dosing regimens (Pevzner et al., 2011).

MATERNAL OBESITY AND BREASTFEEDING⁷

Completing the “Maternal Obesity from All Sides” series with a discussion pertaining to breastfeeding in obese women, Dr. Kathleen Kendall-Tackett shared the following (excerpted) insights.

I remember the moment quite clearly. I was at a large, international breastfeeding conference and

⁶Reprint of June 15, 2011, *Science & Sensibility* blog posted by Pamela Vireday on June 15, 2011, at <http://www.scienceandsensibility.org/?p=3094>

⁷Reprint of June 14, 2011, *Science & Sensibility* blog posted by Kathleen Kendall-Tackett at <http://www.scienceandsensibility.org/?p=3018>

Visit Kathleen Kendall-Tackett’s Web site, Uppity Science Chick, which offers a forum for sharing current and noteworthy research in the field of health psychology (<http://www.uppitysciencechick.com/>).

stopped to read the research posters. As I did, I grew more and more irritated. There were several posters describing special interventions for “obese women.” Some of these interventions involved sending “obese women” to breastfeeding classes designed to address their “special” needs. Excuse me? First of all, the design of these studies appeared to assume that “obese women” are a homogeneous group, which they obviously are not. Second, why a class? Does the fact that they are heavy mean that they need special instructions? I’m certain that these colleagues meant well, but we have to ask whether this approach is a good idea.

... These interventions assume that women over a certain BMI will automatically have breastfeeding problems. When I have raised this issue with my colleagues, I have heard arguments about how larger breasts can cause problems, or that fat women have lower prolactin levels after birth. They also assure me that fat women feel more shame about their bodies and will be reluctant to breastfeed when outside their homes, something we know is related to earlier breastfeeding cessation. Okay, these things might possibly be problems. But women overcome breastfeeding problems all the time. The question we need to ask is whether we are creating self-fulfilling prophecies about these women. Breastfeeding is largely a confidence game. If we communicate to women that they think they will fail, whether we say this directly or indirectly by sending them to a special class, are we setting them up for failure? This is a lesson we had to learn about mothers with issues such as flat nipples. Yes, these women can have more problems but they do not always have problems. When we make flat nipples an issue and communicate that mothers will likely fail, we can increase the rate of breastfeeding failure.

As for the shame issue, keep in mind that even though there are discernable physical markers of obesity (such as BMI), obesity is also a social construct. Not everyone who is fat feels badly about it. In fact, in some ethnic minority populations, fat women are considered attractive. (And from an evolutionary standpoint, carrying some extra poundage is actually a survival advantage.) The question we need to ask is whether obese women with positive body images are having more breastfeeding problems than their smaller peers. I strongly suspect that they are not.

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