

Short Commentary

Prenatal Weight Management: What Can Care Providers Do to Prevent Maternal Excessive Weight Gain?

Carol Shieh DNSc, MPH, RNC-OB, FAAN*

*Corresponding Author: Carol Shieh, Department of Community and Health Systems, Indiana University School of Nursing, 600 Barnhill Drive, Indianapolis, IN 46202, USA; Tel: +13172781575; Fax: +13172742411; E-mail: wshieh@iu.edu, ORCID Identifier: <http://orcid.org/0000-0003-2594-1387>

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Abstract

Maternal prenatal weight data can be used to estimate infant birth weight, connect weight concerns of the women before and after pregnancy, and prevent offspring obesity. Prenatal weight data can be interpreted in relation to many contexts, such as BMI, weight loss or gain, body fat, and patient perspectives. The primary goals for weight management during pregnancy include helping pregnant women achieve an optimal weight but to avoid excessive gestational weight gain. To prevent excessive gestational weight gain among pregnant women, healthcare providers can focus on utilizing integrated and inter professional collaborative team care approach, the 5A's method for lifestyle counseling, and self-monitoring strategy to empower pregnant women for behavioral change. Prenatal weight management is important for a healthy pregnancy with short- and long-term health implications for the mother and the baby.

Keywords: *Weight Gain, Weight Management, Excessive Gestational Weight Gain, 5a's Method, Self-Monitoring, Obesity*

There are many reasons for why prenatal weight management is needed. First, maternal prenatal weight gain can be used to predict the size of an infant. A previous population study, based on 2,438 pregnant women from four ethnic groups and with a viable singleton pregnancy, found an increased risk of giving birth to a baby of either small or large for gestational age among women with below or above the average of gestational weight gain [1]. Second, prenatal weight management is part of the life course weight control intervention for women. Overweight and obesity before pregnancy is strongly associated with excessive gestational weight gain during pregnancy [2]. For some women, concerns about body weight before pregnancy may continue or intensify throughout the pregnancy. Moreover, three-quarter of women retain, on average, 3.5 kg of pregnancy weight at 6 months postpartum and those who gain excessive weight during pregnancy are likely to retain weight after birth [3]. The third reason is that prenatal weight management may prevent intergenerational obesity in the offspring. Growing evidence has pointed to the link between unfavorable intrauterine environment (e.g., excessive gestational weight gain, maternal obesity, and over nutrition) and offspring excess adiposity and childhood obesity [4]. Prevention of childhood obesity can start in the fetal stage by avoiding maternal excessive gestational weight gain through maternal healthy lifestyle. Prenatal weight, therefore, has short- and long-term health implications for the mother and the baby. Healthcare providers should be cognizant of prenatal weight management.

Prenatal Weight and Objective and Subjective Reference Value

Body Mass Index

Body mass index (BMI) is the most commonly used reference value to define adults who are underweight (BMI < 18.5 kg/m²), normal weight (BMI = 18.5–24.9 kg/m²), overweight (BMI = 25–29.9 kg/m²), or obese (BMI ≥ 30 kg/m²) [5]. Assessing prepregnancy BMI is important because optimal gestational weight gain recommended for each woman is individualized and based on her prepregnancy BMI. For instance, gestational weight gain recommendations by the Institute of Medicine [6] are 38–40 lb, 25–35 lb, 15–25 lb, and 11–20 lb for women of underweight, normal weight, overweight, and obese, respectively.

Weight Change

Body weight can also be assessed in the context of change, such as weight loss or weight gain between two time points. In non-pregnant women with overweight or obesity, a weight loss of 2.5–5.5 kg in two or more years can reduce type 2 diabetes by 30% to 60% [7]. Weight loss, however, is not recommended for pregnant women. A weight gain of more than 40 pounds for a singleton pregnancy from the beginning to the end of pregnancy is not favorable regardless of pre-pregnancy BMI [6]. Prenatal weight change can also be evaluated weekly. For instance, based on the IOM weight gain recommendations, a woman with a prepregnancy BMI ≥ 30 kg/m² in the second and third trimester is to gain 0.4 to 0.6 lb per week. A recent study indicates that pregnant women not receiving weight gain advice from their healthcare providers are likely to gain inadequate or excessive weight

during pregnancy [8]. Care providers should have a conversation with pregnant women regarding their optimal recommended gestational weight gain. Furthermore, accuracy of a weight scale may alter weight readings.

Stein et al. [9] found that about 21% of the 223 weight scales collected from primary care clinics, diabetology/endocrinology clinics, weight loss facilities, and fitness centers were inaccurate by more than 6.0 lb when the scales were tested using the 250.0 lb. (113.6 kg) test. Regular calibration of weight scales following manufacture instructions can increase precision of weight measures.

Body Fat

Another context to consider when evaluating body weight is body fat. About 23.5% of US adults with normal weight are metabolically abnormal (normal-weight obesity) and it is their body fat that makes them susceptible to developing a metabolic disorder [10]. Increased body weight from body fat, particularly from abdominal adiposity, is of concern. A non-pregnant woman with a waist circumference of 35 inches (88 cm) has an increased risk for cardiometabolic disease [11]. For pregnant women, there is no agreeable reference value for body fat. A previous study found that an increase of 0.14 kg per week in abdominal fat among pregnant women is associated with an odds ratio of 1.31 (95% CI: 1.10–1.56) for gestational diabetes [12]. There are many ways to measure body fat and other body compositions, such as dual-energy x-ray absorptiometry, bio-impedance analysis, computed tomography, and magnetic resonance imaging [13]. Some of these methods may be cumbersome, expensive, and impractical in practice but are objective measures often performed in research.

Patient Perspectives

A previous study found that body ‘fatness’ and ‘excess fat’ were not desirable terms perceived by study participants with obesity; instead, they preferred a neutral term such as ‘weight’ [14]. These findings suggest that care providers need to be skillful and sensitive during clinical encounters with pregnant women when addressing gestational weight gain issues. Assessing weight in the context of patient perspectives is essential. Body weight change may connote physical, emotional, and relationship issues. A pregnant woman may report difficulty in climbing staircases, walking longer distances, playing with her young children at length, or lying down to sleep due to the weight she gains during pregnancy. An increase in body weight may also make women feel dissatisfied with their bodies or not want to socialize with their friends. Subjective personal perspective about weight gain from pregnant women can also help healthcare providers create individualized care plans that are meaningful to their pregnant patients.

Prenatal Weight Management

The US Preventive Services Task Force [15] recommends clinicians offer or refer patients with a BMI of 30 kg/m² or higher to intensive, multicomponent behavioral interventions. This weight management recommendation is based on the evidence that obesity is a risk factor for many chronic diseases and that behavioral interventions can help people lose weight and therefore decrease

disease risk. Weight management for pregnant women, however, is unique and challenging due to several reasons. First, currently there are no agreeable guidelines for weight loss during pregnancy. For pregnant women with a BMI of 30 kg/m² or higher, the American College of Obstetricians and Gynecologists or ACOG [16] suggests dietary control, exercise, and behavioral modifications be the primary weight management strategies. Second, one half of pregnant women gain excessive weight during pregnancy [2] and each woman’s optimal amount of weight gain is individualized based on her prepregnancy BMI. Prenatal weight management, therefore, should be discussed between all pregnant women and their healthcare providers and this demand may require modifications of practice for some care systems. Third, some providers may be reluctant to discuss with their patients weight management due to time constraint and lack of counseling knowledge and skills [17]. As reported in a previous study, patients wanted their primary care providers to be partners in their weight management efforts, but they recognized limitations of provider’s time and expertise [18].

To help pregnant women adhere to IOM weight gain recommendations and prevent excessive weight gain, care providers may consider an integrated approach as addressed in the ACOG [16] clinical guidelines. This approach begins before conception and through pregnancy and postpartum, especially for women with a BMI in the obesity category. As implied in this approach, care providers in various practice settings, such as primary care centers and in-patient units serving reproductive-age women in-between pregnancy, during pregnancy, and after pregnancy, should discuss weight management with the women.

Another approach is to encourage interprofessional collaboration to maximize support for the women from nurses, physicians, nutritionists, health coaches, and other professionals. A practice guide published by the National Blood, Heart, and Lung Institute [19] states that a practitioner is encouraged to involve other professionals in lifestyle counseling. In fact, primary care providers in a previous study reported they were comfortable to involve ancillary staff who had the skills to do lifestyle counseling for patients [17]. The 5 A’s model (ask, advise, assess, assist, and arrange), endorsed by the Agency for Healthcare Research and Quality [20] and originally developed for smoking cessation, is a useful guide for behavior counseling and can be used in prenatal weight and lifestyle counseling. For instance, Eaton et al. [21] used the 5A’s (address the agenda, assess, advise, assist, and arrange) to do nutrition counseling in primary care setting. Vallis et al. [22] provided detailed definitions for the 5 A’s (ask, assess, advice, agree, and assist) for obesity counseling and they added an “agree” step to invite clients to develop a workable, measurable, and achievable plan.

The American Association of Clinical Endocrinologists and the American College of Endocrinology clinical guidelines [23] suggest self-monitoring, goal setting, stress reduction, stimulus control, behavioral contracting, cognitive restructuring, and social support as behavioral change strategies. Among them, self-monitoring is the most used strategy and requires minimal skills of the women. It has also been found that self-monitoring strategy is the most effective

strategy as compared to other strategies in promoting health eating and physical activity and postpartum weight loss [24, 25]. Care providers can empower pregnant women by encouraging them to use self-monitoring strategy to monitor body weight change and weight-related behavior, such as food intake and physical activity. Care providers and pregnant women can then look at self-monitored data and collectively decide 'problem behaviors' and propose potential solutions.

Summary

Weight gain in pregnancy is an indicator for fetal growth and infant birthweight. Prenatal weight assessment and management should be viewed as part of a life course intervention and as an opportunity to prevent potential obesity in the offspring and the mother. Due to its health implications in the mother and the baby, prenatal weight assessment and management should be incorporated in prenatal practice. Healthcare providers should aim to help pregnant women achieve optimal weight recommended by the Institute of Medicine and avoid excessive gestational weight gain. Healthcare providers can approach prenatal weight management using an integrated team care model, interprofessional collaborative practice, the 5 A's method for lifestyle behavior counseling, and a self-monitoring strategy to identify problem areas in eating and physical activity, and solutions to modify unfavorable behaviors.

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