



Original article

Potential for a Stress Reduction Intervention to Promote Healthy Gestational Weight Gain: Focus Groups with Low-Income Pregnant Women



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ABSTRACT

Background: Prepregnancy body mass index and excessive gestational weight gain (GWG) are associated with adverse maternal and infant outcomes. Because stress contributes to obesity and eating behaviors, stress reduction interventions during pregnancy may be a novel way to influence GWG, positively affect maternal and infant outcomes, and address the obesity epidemic intergenerationally.

Methods: Our research team is developing a mindfulness-based stress reduction and nutrition intervention for low-income, overweight and obese pregnant women, with healthy GWG as the primary outcome measure. To inform development of the intervention, we conducted focus groups with our target population. Focus group transcripts were analyzed for themes related to sources and importance of stress, relationship between stress and eating, and motivation for a stress reduction pregnancy intervention.

Findings: Fifty-nine low-income pregnant women from the San Francisco Bay Area participated in focus groups and completed a questionnaire. The vast majority of women (80%) reported experiencing significant stress from a variety of sources and most recognized a relationship between stress and eating in their lives.

Conclusions: This at-risk population seems to be extremely interested in a stress reduction intervention to support healthy GWG during pregnancy. The women in our groups described high levels of stress and a desire for programs beyond basic dietary recommendations. These findings inform practitioners and policymakers interested in pregnancy as a “window of opportunity” for behavior change that can affect the metabolic and weight trajectory both for women and their offspring.

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The magnitude of the obesity epidemic among women of childbearing age in the United States is staggering: 60% of all women ages 20 to 39 and 40% of pregnant women are either overweight or obese (Yeh & Shelton, 2005) with women of lower socioeconomic status and women of color sharing a greater portion of the burden (Ogden, Carroll, Kit, & Flegal, 2006). Given the increasing prevalence of obesity among pregnant women,

the Institute of Medicine recently established new guidelines for gestational weight gain (GWG) according to prepregnancy body mass index (BMI). Specifically, these recommendations include a total GWG of 15 to 25 pounds for overweight women (BMI 25.0–29.9 kg/m²) and 11 to 20 pounds for obese women (BMI ≥ 30.0 kg/m²; Rasmussen & Yaktine, 2009). Excessive GWG confers risk to the pregnant woman and her fetus. Maternal complications include increased risk of gestational diabetes mellitus, pre-eclampsia, Cesarean section, maternal mortality (Mamun et al., 2011; Norman & Reynolds, 2011), and postpartum weight retention (Mamun et al., 2010; Nehring et al., 2011; Hernandez, 2012). For offspring, associated risks include increased rates of

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obesity in childhood and adulthood (Mamun et al., 2009; Schack-Nielsen, Michaelsen, Gamborg, Mortensen, & Sørensen, 2010), greater potential for developing metabolic syndrome (Boney, Verma, Tucker, & Vohr, 2005), and increased incidence of autism spectrum disorders (O'Higgins, Doolan, Mullaney, Daly, McCartney, & Turner, 2013).

Despite the importance of healthy GWG, approximately 60% of women gain in excess of the Institute of Medicine recommendations (Carmichael, Abrams, & Selvin, 1997; Webb, 2008). The reasons for this “noncompliance” are myriad and have significant policy and practice implications for women's health. Studies to date show mixed results for dietary and other behavioral interventions designed to reduce excessive GWG (Skouteris et al., 2010; Tanentsapf, Heitmann, & Adegboye, 2011). A recent review concludes that insufficient research exists to make evidence-based recommendations regarding clinical interventions targeting GWG (Ronnberg & Nilsson, 2010). Given the magnitude and scope of problems associated with excessive GWG and the paucity of evidence for effective interventions, new approaches are needed. Because depression has been related to excessive GWG among low income women (Wright et al., 2013), interventions targeting psychological factors alongside dietary change have promise.

Recently, Davis, Stange, and Horwitz (2010) highlighted the overlap of stress, coping, and eating behaviors and hypothesize that these interactions play a critical role in the obesity disparities among women of childbearing age. Chronic stress and stress during pregnancy are associated with many of the same maternal and offspring risks as maternal obesity and excessive GWG (Dunkel Schetter, 2011; Entringer, Buss, & Wadhwa, 2010; Wadhwa, 2005). The public health impact of stress within this population is amplified by the association between increased psychosocial stress and antepartum depression (Dailey & Humphreys, 2011; Jesse & Swanson, 2007; Melville, Gavin, Guo, Fan & Katon, 2010). Thus, the interactions among stress, eating behavior, and GWG warrant further exploration. Several recently published, qualitative studies examine various contextual factors related to diet and GWG among low-income pregnant women (Goodrich, Cregger, Wilcox, & Liu, 2013; Paul, Graham, & Olson, 2013; Reyes, Klotz, & Herring, 2013). Our study extends this work to ask women specifically about their perceptions of the relationship between stress and eating and their interest in a stress reduction intervention during pregnancy.

Maternal stress may impact GWG by two primary pathways: Alteration of maternal psychoneuroendocrine physiology and health-related behaviors such as dietary intake and exercise. There is growing evidence of the relationship between stress and eating behaviors, and the role of the hypothalamic-pituitary-adrenal axis and reward circuitry with increased intake of calorically dense food (Adam & Epel, 2007). Nonpregnant women with chronic stress have been found to be more prone to emotional eating and visceral deposition of fat (Tomiyama, Dallman, & Epel, 2011) and reduction in abdominal fat was shown among overweight women who experienced a reduction in stress and cortisol awakening response after participating in mindfulness training (Daubenmier et al., 2011). Furthermore, low-income women who report higher levels of stress and depression also have lower quality of dietary intake during the first trimester (Fowles, Stang, Bryant, & Kim, 2012). There is evidence indicating the effectiveness of stress reduction interventions during pregnancy to ameliorate negative mood and perceived stress (Beddoe & Lee, 2008; Urizar & Munoz, 2011;

Vieten & Astin, 2008), but this has not been extended to the relationship with GWG.

Our research team is developing a mindfulness-based stress reduction and nutrition intervention for low-income, overweight and obese pregnant women to achieve healthy GWG. To inform intervention development, we conducted focus groups with women representative of the target population to elicit information about stress, eating behaviors, weight, and other health concerns, and to gain feedback about our proposed intervention. By asking women directly about their lives, we are adding their voices to the theoretical construct of pregnancy as a “window of opportunity” for obesity intervention. Their responses provide critical information from low-income, overweight women that should influence the dilemma of weight management in pregnancy.

Methods

Focus groups were chosen because we aimed to create a participant-informed intervention that would reflect the needs of the population being served. Focus groups are effective in gathering information on sensitive topics (Halcomb, Gholizadeh, DiGiacomo, Phillips, & Davidson, 2007) and in populations that tend to be marginalized (Halcomb et al., 2007; Steward & Shamdasani, 1994). The group interaction of focus groups can elicit responses and data that might not be accessible from individual interviews (Morgan, 1993). We were particularly interested in what women would reveal in a group setting about their experience of stress and eating behaviors because we were planning a group intervention.

Women were recruited through prenatal care providers, clinics, and advertisements in community settings. Inclusion criteria were 1) currently pregnant, 2) BMI of 25.0 kg/m² or greater, and 3) income to poverty ratio 500% or less of the specific to family size. Exclusion criteria were 1) an inability to read or speak English, and 2) psychiatric or physical limitations that would limit participation in the focus group. One hundred twenty-six women were screened, 69 of whom met eligibility criteria. The most common reasons for ineligibility were BMI of less than 25.0 kg/m² or income to poverty ratio of less than 500%. Ten eligible women did not participate in focus groups because of scheduling difficulties or illness.

A total of 59 women participated in focus groups of two to nine participants each. Participants provided written, informed consent and completed a pre-focus group questionnaire to collect basic demographic and health information. Groups were led by two female facilitators: An African-American social worker and a Caucasian clinical psychology postdoctoral fellow. Both were experienced in conducting focus groups with women in a health care context. A semistructured script consisting of open-ended questions with probes was used. Examples of questions asked include a) “Are you concerned about how much weight you gain during pregnancy? If so, what are your main concerns? If not, why not?” b) “Now I want you to think about some of the things in your life that make you feel stressed. What are some of the things that stress you out?” and c) “If you said that you would like to participate in a class like this, what is the single most important thing that would make you want to do so?” Group duration was approximately 2 hours and women were compensated with \$50.00 gift cards.

Focus groups and interviews were audio-recorded and transcribed verbatim. Transcripts were read in entirety and analyzed independently by two members of the research team (M.T. and

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