

HHS Public Access

Author manuscript *J Acad Nutr Diet.* Author manuscript; available in PMC 2021 May 01.

Published in final edited form as:

J Acad Nutr Diet. 2020 May ; 120(5): 815-824. doi:10.1016/j.jand.2019.09.020.

Women's Experience and Understanding of Food Cravings in Pregnancy: A Qualitative Study in women receiving prenatal care at the University of North Carolina- Chapel Hill

Lauren E. Blau, M.A.^a, Leah M. Lipsky, Ph.D.^a, Katherine W. Dempster, B.S.^a, Miriam H. Eisenberg Coleman, Ph.D.^a, Anna Maria Siega-Riz, Ph.D.^b, Myles S. Faith, Ph.D.^c, Tonja R. Nansel, Ph.D.^a

^aHealth Behavior Branch, Division of Intramural Population Health Research, *Eunice Kennedy Shriver* National Institute of Child Health and Human Development

^bSchool of Nursing and School of Medicine, University of Virginia

^cDepartment of Counseling, School, and Educational Psychology, Graduate School of Education, University of Buffalo – SUNY

Abstract

Background: While the occurrence of food cravings during pregnancy is well-established, there is a paucity of qualitative data on pregnant women's perceptions of and responses to food cravings. This study sought to assess and describe pregnant women's experiences and behaviors pertaining to food cravings.

Methods: Eight focus groups were conducted with 68 pregnant women in their second trimester from March 2015 to October 2016. Using a semi-structured approach, the facilitator asked women open-ended questions regarding their experience of eating behaviors and food cravings. The content from the focus groups was analyzed using a bottom-up approach based on grounded theory and constant comparison analysis.

Results: Participants described cravings as urgent, food-specific, and cognitively demanding occurrences that were differentiated from hunger. They described beliefs surrounding the physiological causes of cravings and rationales for satisfying their cravings. Strategies used to manage cravings included environmental modifications to limit proximity and availability of craved foods, cognitive and behavioral strategies like distraction, and acceptance through satisfying the craving. Participants described food cravings as a psychologically salient aspect of their pregnancy, reporting a variety of emotional precursors and reactions surrounding their cravings.

Correspondence concerning this manuscript should be addressed to Lauren E. Blau, Department of Psychology, University at Albany, State University of New York, Social Sciences 399, 1400 Washington Avenue, Albany, NY 12222. lblau@albany.edu. T.N., M.F., A.M.S.R., and L.L. conceived of the study and developed the research design. L.B., L.L., K.D., M.H.E.C., and T.N. were involved in the analysis of data. L.B., L.L., and T.R were involved in the writing of the manuscript. All authors approve of the submission of the manuscript in its current form.

Publisher's Disclaimer: This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.

Conclusions: A better understanding of food cravings may assist with the development of interventions to improve eating behaviors and reduce eating-related distress during pregnancy. Acceptance regarding food cravings was indicated as a way to diffuse pregnancy-related stress. These findings contribute to our understanding of psychological influences on eating behaviors in pregnant women.

Keywords

Pregnancy; food cravings; eating behavior; strategies

Introduction

Food cravings, defined as intense desires for specific foods that are difficult to resist,^{1–3} are common during pregnancy,⁴ when diet has important implications for a variety of maternal and infant health outcomes.^{5–10} Food cravings during pregnancy are associated with increased intake of discretionary foods,^{4,11} and with excess gestational weight gain.^{4,12–14} Understanding women's interpretations and behaviors related to food cravings in pregnancy may inform efforts to improve eating behaviors and weight trajectories during this developmental period in a woman's life.

Food cravings are present early in pregnancy, with peak frequency occurring during the second trimester.^{15–17} In interviews and focus groups examining perceived influence on diet and weight gain during pregnancy, food cravings were said to influence food choices and were identified as a common barrier to healthy eating.^{18,19} Additionally, women perceived these cravings as biologically based and therefore out of their control.²⁰ Specific foods craved are culture- and context-specific, but in the U.S. and other western countries, cravings commonly include comfort foods such as ice cream, chocolate, fruits, and other sweets. ^{13,16,21,22} However, given cultural and contextual influences on the experience of food cravings in the general population,^{23–26} much of the research on food cravings during pregnancy conducted more than a decade ago may not be applicable to contemporary samples of pregnant women.

While previous research has documented the frequency of cravings and explored types of foods craved, there is a paucity of qualitative data on pregnant women's responses to food cravings and strategies for managing them. Some women have reported initiating healthier eating behaviors as a way to regain power in response to a perceived loss of control over pregnancy-related physical and physiological changes.²⁷ However, eating behaviors in general have been identified as contributing to feelings of guilt and negative affect during pregnancy, as many women are aware that certain foods such as alcohol, raw fish, or processed foods may be harmful to the baby.²⁷ Some women indicated that their perception of the importance of a healthy diet for themselves and their fetus contributed to attributions of being a "good mother" when consuming healthy foods, and a "bad mother" when consuming what they considered to be unhealthy foods, furthering feelings of guilt and distress over lack of self-control.²⁰ These findings suggest a role of dietary issues in influencing psychological well-being in pregnancy; however, little is known about the emotional impact of food cravings in pregnant women. Qualitative research is particularly

well suited for in-depth exploration of dietary behaviors in the context of lived experience²⁸, and thus is a useful methodology for advancing understanding of women's perceived experience of cravings. Therefore, the objectives of this study were to qualitatively assess and describe women's interpretations and perceptions of their experiences, behaviors, and coping strategies pertaining to food cravings during pregnancy.

Methods

Participants

Focus group participants were a subsample of participants of the Pregnancy Eating Attributes Study (PEAS), an observational, prospective cohort study examining the associations of food reward sensitivity with pregnancy-related diet and weight change.²⁹ PEAS participants were recruited from the obstetrics clinics at the University of North Carolina at Chapel Hill Healthcare System. Details on enrollment and recruitment of PEAS are described elsewhere.²⁹ Eligibility criteria included: gestational age <12 weeks, aged 18-45 years, no previous diagnosis of psychiatric or eating disorders, no medical conditions or medications that would affect participants were recruited between 15 and 27 weeks gestation across the range of early pregnancy BMI, including only participants who completed at least 75% of baseline surveys. All focus groups were conducted between March 2015 and October 2016.

Procedures

Study procedures were approved by the Institutional Review Board at the University of North Carolina at Chapel Hill. Respondents were informed of the nature and purpose of the study, provided written informed consent prior to participation and were compensated \$50 in cash for their participation.

Focus groups were facilitated by a female moderator with expertise in conducting focus groups. They were held in a conference room at the Women's Health Research Center, where refreshments and childcare were provided. The facilitator explained the importance of everyone's opinion being heard, noting that the goal was to gather different perspectives and to hear the women's voices on certain topics. The facilitator also emphasized the importance of confidentiality and underscored that there were no 'right or wrong answers' in focus groups. Participants were asked open-ended questions regarding eating behaviors and experiences of cravings in pregnancy, with follow-up prompts used as needed to facilitate discussion (Figure 1). Focus group questions were developed by a team of investigators with expertise in dietetics, reproductive epidemiology, nutrition, and clinical, community, and developmental psychology. Questions were subsequently reviewed and refined in consultation with the focus group facilitator to ensure plain language, clarity, and avoidance of leading language. Each focus group lasted 60-90 minutes and was audio recorded and transcribed thereafter. At least one study investigator and an additional note taker attended every focus group. Eight focus groups with 5-14 participants in each were conducted over the course of a year. Data saturation was not formally determined; however, previous

research suggests the adequacy of this sample for data saturation. In studies examining the contribution of more than 40 focus groups,³⁰ data saturation was reached after five focus groups, and 90% of themes were discoverable within 3–6 focus groups, with 3 focus groups sufficient to identify all the most prevalent themes³¹.

Analysis

Focus group content was analyzed using Nvivo 11 following established guidelines.^{28,32,33} The coding scheme was developed using data from all eight focus groups. Five authors independently evaluated one transcript for initial theme development and discussed the resulting codes to obtain consensus. Using a bottom-up approach from grounded theory, each topic that arose in the focus groups was noted and then categorized into major themes. Using constant comparison analysis,³⁴ content from each group was subsequently reviewed to identify themes and determine whether themes from one group emerged across other groups. The remaining transcripts were then reviewed and the thematic framework was refined to incorporate data from all eight focus groups. A peer-debriefing process was then used to reach consensus on the coding scheme. Two authors independently coded each transcript and then reviewed with research team members to reconcile any discrepancies. Coding was modified as needed based on emerging constructs. Results are categorized by themes reflecting topics that were explicitly queried in the guide - "a priori," and themes that emerged without questions that specifically addressed them - "emergent."

Results

Table 1 describes the demographics of the focus group sample in comparison to the main study population. The majority of focus group participants were non-Hispanic white and had a bachelor's degree or higher.

Themes

Six themes were identified surrounding the experience of food cravings in pregnancy. Three related to questions asked explicitly by the facilitator: (1) descriptions of cravings; (2) types of foods craved (3) strategies for managing cravings. Additional themes were identified that emerged organically during the focus groups: (4) beliefs about the cause of cravings; (5) justifications for satisfying cravings; and (6) psychological aspects of cravings.

A priori themes

Descriptions of cravings—See Table 2 for representative quotes from the focus group study regarding women's experience with cravings in pregnancy. Participants described cravings as an intense, food-specific, and all-consuming desire for a certain food. Cravings occurred at various times of the day and night, and were generally differentiated from hunger. Some of the women described cravings as transient, while many said the feeling was consistently powerful until satisfied. One aspect of cravings consistent across women was the specificity of the food craved; in many cases, even the brand or restaurant name was specified.

Foods Craved—Participants primarily reported craving discretionary ("junk") foods; some also indicated craving fruits. Some women craved specific meals like hamburgers from a fast-food restaurant, or a particular cuisine like Mexican food. Sweets and salty snack foods were commonly reported, with specific snacks including cheese puffs, chocolate, and potato chips. Additionally, some women reported craving items that they avoided consuming during pregnancy due to potential adverse health effects, such as deli meats, alcohol, and raw sushi. No participants indicating having cravings for non-food items (pica).

Strategies for managing cravings—Women described a variety of strategies for managing cravings. Four main sub-categories of coping strategies emerged from these discussions: contextual strategies, behavioral strategies, psychological strategies and satisfying cravings. Contextual strategies were usually related to removing craved foods from the environment or removing themselves from environments where they may encounter craved foods. The idea underlying this strategy was that if the food is not nearby, it would be easier to resist.

Women mentioned behaviorally-focused strategies, including eating frequently to prevent hunger, exercising, drinking water, and sleeping to help resist cravings. Another behaviorally-focused strategy was to substitute something healthier first, rather than start with the craved food, in an attempt to alleviate the urge. Alternatively, some consumed a small portion of the craved food.

Participants also described psychologically-based behavioral strategies including keeping busy or distracting themselves to mentally distance themselves from food cravings. More cognitively-focused psychological strategies for managing cravings included considering the health implications of the craved food for the baby.

The most common strategy reported was consuming the craved food item. This was often framed in terms of acceptance, as women felt that denying themselves the craved food caused psychological distress. Women stated that resisting the craved food was ineffective, and that the craving would intensify, causing them to eventually consume more of the craved food.

Emergent themes

Beliefs about the causes of cravings—Women's beliefs about why cravings occur was an emergent theme as they discussed their experiences and behaviors surrounding the etiology of their cravings. Some women attributed the experience of cravings to physiological changes of pregnancy or requirements such as hormonal fluctuations or acute nutritional deficiencies.

Justifications for satisfying cravings—When participants discussed satisfying their cravings, they often provided a justification or rationale for this decision. Some women justified satisfying cravings as a reward for engaging in some other healthy behavior. Women also cited the additional pregnancy-related energy requirements as another justification for giving in to cravings. Several participants made statements suggesting they were aware that they may be using pregnancy as an excuse to eat an unhealthy food.

Psychological aspects of cravings—Women's emotional triggers and responses were an emergent theme that occurred across participants' discussions of experiencing, resisting, and satisfying cravings. Unpleasant emotional states prompted cravings for some women and resulted from resisting cravings for others. Both positive and negative emotional states were experienced in response to conceding to cravings. Some women experienced guilt for giving in to cravings, while others felt less guilty for giving in during pregnancy. Participants also described satisfying cravings in order to avoid psychological distress. Some women described cravings as arising from nostalgia or pleasant memories.

Discussion

In focus group discussions, pregnant women described cravings as highly salient experiences that they associate with their own eating behaviors and emotional experiences. They described cravings as urgent, food-specific, all-consuming occurrences that were differentiated from hunger. Consistent with previous findings,^{16,21} common types of foods craved by this sample of Western women were sweets such as chocolate and ice cream or salty foods like chips. ¹ Women discussed their beliefs surrounding the physiological causes of cravings and described rationales for satisfying their cravings. Strategies used to manage cravings included environmental modifications to limit proximity and availability of craved foods, cognitive and behavioral strategies like distraction, and acceptance through satisfying the craving. These findings are consistent with strategies employed to manage cravings in non-pregnant populations.^{35,36} To our knowledge no previous research has examined strategies used by women during pregnancy to manage their cravings. Given the ubiquitous nature of cravings during pregnancy, these findings are important to help better understand psychological influences on eating behaviors in pregnant women.

Participants' descriptions of justifications for indulging unhealthy cravings were often specific to pregnancy. Some women perceived cravings as reflecting a need for the specific nutrients present in the food, while others indicated a need to accept cravings as part of pregnancy to reduce feelings of distress. Consistent with previous research,³⁷ a belief that pregnancy allowed for relaxed dietary rules was a reason to indulge in cravings. In a previous study, women who reported high levels of pre-pregnancy dietary restraint gained more gestational weight,³⁸ suggesting the need for future research on the relationship between dietary restraint and food intake in pregnancy.

Emotional states were closely tied to women's experiences of cravings. Participants indicated that positive and negative moods often preceded food cravings, and stated that resisting food cravings caused emotional distress, while indulging in cravings often precipitated a more positive mood state. This is consistent with research in non-pregnant populations in which food cravings are closely associated with mood³⁹ and with the literature on emotional eating, which suggests that some people eat in response to a negative affective state.⁴⁰ In pregnant women, food cravings have been shown to mediate the association of emotional eating with excess gestational weight gain⁴¹. Further, some women reported satisfying cravings because they associated the food with a positive emotion, such as a pleasant memory or feeling. Women reported responding emotionally to cravings in one of two ways - with guilt or with a sense of satisfaction and relief. Some women experienced

both. Participants appeared to employ acceptance-related cognitive strategies to reduce feelings of guilt and loss of control when indulging in cravings. Preoccupation with cravings caused undesirable psychological distress, and this distress was alleviated through acceptance. Overall, women indicated that some degree of tolerance towards their cravings and subsequent eating behaviors facilitated a better mental and emotional status.

Implications

These findings suggest the importance of considering the psychological aspects of food cravings when developing interventions targeting eating behaviors in pregnant women. Accounting for women's beliefs about the physiological origins of cravings and the psychological effects of resisting or satisfying the cravings may be critical for developing effective message framing and behavioral management strategies. Mindfulness-based eating interventions could help women manage cravings while promoting mental well-being, as this approach addresses emotional aspects of eating and has been effective in promoting healthful eating behaviors in non-pregnant samples^{42,43}.

Strengths and Limitations

Strengths and limitations of this study should be considered when evaluating the findings. The sample size is relatively large for focus group studies, and women across the range of BMI were included. However, this was a mostly white, higher income, and higher educated group of women who have access to prenatal care. Furthermore, the women were all part of a larger study assessing eating behaviors, and therefore they may have been more cognizant of dietary intake. The discussion guide was semi-structured, such that some topics were defined a priori, and there is a possibility that some aspects of food cravings during pregnancy were not identified as a result. However, eight focus groups were administered, which should be sufficient for theoretical saturation.

Conclusion

Pregnant women reported food cravings as a common and psychologically salient aspect of their pregnancy. They indicated using a variety of cognitive and behavioral strategies to manage these cravings, including acceptance. An understanding of the emotional precursors and responses to food cravings may assist with the development of interventions to improve eating behaviors and reduce eating-related distress during pregnancy.

Acknowledgments

Conflicts of Interest and Source of Funding: The authors declare that they have no conflict of interest. This research was supported by the *Eunice Kennedy Shriver* National Institute of Child Health and Human Development Intramural Research Program (contract #HHSN275201300015C and #HHSN275201300026I/HHSN27500002).

References

- 1. Orloff NC, Hormes JM. Pickles and ice cream! Food cravings in pregnancy: hypotheses, preliminary evidence, and directions for future research. Front Psychol. 2014;5:1076. [PubMed: 25295023]
- 2. Gendall KA, Joyce PR, Sullivan PF. Impact of definition on prevalence of food cravings in a random sample of young women. Appetite. 1997;28(1):63–72. [PubMed: 9134095]

- 3. Weingarten HP, Elston D. The phenomenology of food cravings. Appetite. 1990;15(3):231–246. [PubMed: 2281953]
- Orloff NC, Flammer A, Hartnett J, Liquorman S, Samelson R, Hormes JM. Food cravings in pregnancy: Preliminary evidence for a role in excess gestational weight gain. Appetite. 2016;105:259–265. [PubMed: 27215835]
- Sotres-Alvarez D, Siega-Riz AM, Herring AH, et al. Maternal dietary patterns are associated with risk of neural tube and congenital heart defects. Am J Epidemiol. 2013;177(11):1279–1288. [PubMed: 23639938]
- Carmichael SL, Yang W, Feldkamp ML, et al. Reduced risks of neural tube defects and orofacial clefts with higher diet quality. Arch Pediatr Adolesc Med. 2012;166(2): 121–126. [PubMed: 21969361]
- Knudsen VK, Orozova-Bekkevold IM, Mikkelsen TB, Wolff S, Olsen SF. Major dietary patterns in pregnancy and fetal growth. Eur J Clin Nutr. 2008;62(4):463–470. [PubMed: 17392696]
- Okubo H, Miyake Y, Sasaki S, et al. Maternal dietary patterns in pregnancy and fetal growth in Japan: the Osaka Maternal and Child Health Study. Br J Nutr. 2012;107(10):1526–1533. [PubMed: 21929833]
- Thompson JM, Wall C, Becroft DM, Robinson E, Wild CJ, Mitchell EA. Maternal dietary patterns in pregnancy and the association with small-for-gestational-age infants. Br J Nutr. 2010;103(11):1665–1673. [PubMed: 20211035]
- Martin CL, Sotres-Alvarez D, Siega-Riz AM. Maternal dietary patterns during the second trimester are associated with preterm birth. J Nutr. 2015;145(8):1857–1864. [PubMed: 26084362]
- Farland LV, Rifas-Shiman SL, Gillman MW. Early pregnancy cravings, dietary intake, and development of abnormal glucose tolerance. J Acad Nutr Diet. 2015;115(12):1958–1964 e1951. [PubMed: 26099686]
- Belzer LM, Smulian JC, Lu SE, Tepper BJ. Food cravings and intake of sweet foods in healthy pregnancy and mild gestational diabetes mellitus. A prospective study. Appetite. 2010;55(3):609– 615. [PubMed: 20869416]
- Hill AJ, Cairnduff V, McCance DR. Nutritional and clinical associations of food cravings in pregnancy. J Hum Nutr Diet. 2016;29(3):281–289. [PubMed: 26400798]
- Renault KM, Carlsen EM, Norgaard K, et al. Intake of sweets, snacks and soft drinks predicts weight gain in obese pregnant women: Detailed analysis of the results of a randomised controlled trial. PLoS One. 2015;10(7):e0133041. [PubMed: 26192183]
- 15. Tierson FD, Olsen CL, Hook EB. Influence of cravings and aversions on diet in pregnancy. Ecol Food Nutr. 1985;17(2):117–129.
- Pope JF, Skinner JD, Carruth BR. Cravings and aversions of pregnant adolescents. J Am Diet Assoc. 1992;92(12):1479–1482. [PubMed: 1452960]
- Weigel MM, Coe K, Castro NP, Caiza ME, Tello N, Reyes M. Food aversions and cravings during early pregnancy: association with nausea and vomiting. Ecol Food Nutr. 2011;50(3):197–214. [PubMed: 21888579]
- Goodrich K, Cregger M, Wilcox S, Liu J. A qualitative study of factors affecting pregnancy weight gain in African American women. Maternal and child health journal. 2013;17(3):432–440. [PubMed: 22527762]
- 19. Groth SW, Simpson AH, Fernandez ID. The dietary choices of women who are low-income, pregnant, and African American. Journal of midwifery & women's health. 2016;61(5):606–612.
- 20. Copelton DA. "You are what you eat": nutritional norms, maternal deviance, and neutralization of women's prenatal diets. Deviant Behav. 2007;28(5):467–494.
- Hook EB. Dietary cravings and aversions during pregnancy. Am J Clin Nutr. 1978;31 (8):1355– 1362. [PubMed: 277064]
- 22. Bayley TM, Dye L, Jones S, DeBono M, Hill AJ. Food cravings and aversions during pregnancy: relationships with nausea and vomiting. Appetite. 2002;38(1):45–51. [PubMed: 11883917]
- Zellner DA, Garriga-Trillo A, Rohm E, Centeno S, Parker S. Food liking and craving: A crosscultural approach. Appetite. 1999;33(1):61–70. [PubMed: 10447980]
- Osman JL, Sobal J. Chocolate cravings in American and Spanish individuals: biological and cultural influences. Appetite. 2006;47(3):290–301. [PubMed: 16831486]

- Hormes JM, Orloff NC, Timko CA. Chocolate craving and disordered eating. Beyond the gender divide? Appetite. 2014;83:185–193. [PubMed: 25173065]
- 26. Hormes JM, Niemiec MA. Does culture create craving? Evidence from the case of menstrual chocolate craving. PLoS One. 2017;12(7):e0181445. [PubMed: 28723930]
- 27. Bianchi CM, Huneau JF, Le Goff G, Verger EO, Mariotti F, Gurviez P. Concerns, attitudes, beliefs and information seeking practices with respect to nutrition-related issues: a qualitative study in French pregnant women. BMC Pregnancy Childbirth. 2016;16(1):306. [PubMed: 27729021]
- Rabiee F Focus-group interview and data analysis. Proc Nutr Soc. 2004;63(4):655–660. [PubMed: 15831139]
- Nansel TR, Lipsky LM, Siega-Riz AM, Burger K, Faith M, Liu A. Pregnancy eating attributes study (PEAS): a cohort study examining behavioral and environmental influences on diet and weight change in pregnancy and postpartum. BMC Nutr. 2016; 2: 45. [PubMed: 28663822]
- Coenen M, Stamm TA, Stucki G, Cieza A. Individual interviews and focus groups in patients with rheumatoid arthritis: a comparison of two qualitative methods. Qual Life Res. 2012;21(2):359– 370. [PubMed: 21706128]
- 31. Guest G, Namey E, McKenna K. How many focus groups are enough? Building an evidence base for nonprobability sample sizes. Field Methods. 2016;29(1):3–22.
- 32. Onwuegbuzie AJ, Dickinson WB, Leech NL, Zoran AG. A aualitative framework for collecting and analyzing data in focus group research. 2009;8(3):1–21.
- 33. Krueger RA, Casey MA. Focus groups: A practical guide for applied research. 3rd ed Thousand Oaks, CA: Sage Publications Inc.; 2000.
- 34. Glaser BG, Strauss AL. The discovery of grounded theory; strategies for qualitative research. Chicago,: Aldine Pub. Co.; 1967.
- 35. Bishaw A, Macartney S. Poverty: 2008 and 2009. US Census Bureu;2010.
- Forman EM, Hoffman KL, Juarascio AS, Butryn ML, Herbert JD. Comparison of acceptancebased and standard cognitive-based coping strategies for craving sweets in overweight and obese women. Eating behaviors. 2013;14(1):64–68. [PubMed: 23265404]
- Moffitt R, Brinkworth G, Noakes M, Mohr P. A comparison of cognitive restructuring and cognitive defusion as strategies for resisting a craved food. Psychol Health. 2012;27 Suppl 2:74– 90. [PubMed: 22691136]
- Padmanabhan U, Summerbell CD, Heslehurst N. A qualitative study exploring pregnant women's weight-related attitudes and beliefs in UK: the BLOOM study. BMC Pregnancy Childbirth. 2015;15:99. [PubMed: 25895679]
- Mumford SL, Siega-Riz AM, Herring A, Evenson KR. Dietary restraint and gestational weight gain. J Am Diet Assoc. 2008;108(10):1646–1653. [PubMed: 18926129]
- Hill AJ, Weaver CF, Blundell JE. Food craving, dietary restraint and mood. Appetite. 1991;17(3):187–197. [PubMed: 1799281]
- Allison DB, Heshka S. Emotion and eating in obesity? A critical analysis. Int J Eat Disord. 1993;13(3):289–295. [PubMed: 8477301]
- 42. Blau LE, Orloff NC, Flammer A, Slatch C, Hormes JM. Food craving frequency mediates the relationship between emotional eating and excess weight gain in pregnancy. Eating behaviors. 2018;31:120–124. [PubMed: 30253292]
- 43. Jordan CH, Wang W, Donatoni L, Meier BP. Mindful eating: Trait and state mindfulness predict healthier eating behavior. Pers Individ Dif. 2014;68:107–111.
- 44. O'Reilly GA, Cook L, Spruijt-Metz D, Black DS. Mindfulness-based interventions for obesityrelated eating behaviours: a literature review. Obes Rev. 2014;15(6):453–461. [PubMed: 24636206]
- 45. Webb JB, Siega-Riz AM, Dole N. Psychosocial determinants of adequacy of gestational weight gain. Obesity (Silver Spring, Md). 2009;17(2):300–309.
- 46. Mehta UJ, Siega-Riz AM, Herring AH. Effect of body image on pregnancy weight gain. Maternal and child health journal. 2011;15(3):324–332. [PubMed: 20204481]

 Hill B, Skouteris H, McCabe M, et al. A conceptual model of psychosocial risk and protective factors for excessive gestational weight gain. Midwifery. 2013;29(2):110–114. [PubMed: 23159235]

Research Snapshot

Research Question:

How do pregnant women interpret, perceive, experience, and cope with food cravings in pregnancy?

Key Findings:

In this qualitative study using focus groups, 68 pregnant women were recruited from a larger study on eating behaviors and weight gain in pregnancy to share experiences and interpretations of food cravings in pregnancy. Our data suggest that food cravings are psychologically salient aspects of pregnancy, and women's strategies for coping with them range from behavioral modifications to more cognitively-laden approaches.

I. Moderator Introduction

Hello, I would like to welcome all of you to our focus group discussion and thank you for taking time out of your busy schedule to join us today. My name is [Name] and I will be moderating our conversation. Today, we'll be talking about some of your experiences, thoughts and feelings about eating during this pregnancy. I'm not an expert on this topic. I'm here to listen to what you have to say. There has been very little research on the topics that we will be discussing today, so your ideas and opinions will be extremely valuable

In a focus group, there are no right or wrong answers, only opinions, and I'd like to hear from all of you about equally. Please feel free to share your candid thoughts and opinions, even if they differ from something someone else here has said. It's helpful for us to hear different points of view; remember that there are many more people outside this room who probably share your particular opinion. Knowing your honest thinking about the issues we will be talking about will help healthcare providers and researchers understand eating attitudes of pregnant women.

I'm not an expert on the topics we will be discussing, today. I'm here to listen to what you have to say.

We will be audio recording our discussion today because I want to make sure I don't miss any of your comments, but, I want to assure you that everything you say will be confidential and that none of your comments will be associated with your name. We also ask that each of you respect the privacy of your fellow focus group participants by keeping the comments made here today confidential and by not sharing them with anyone outside this group. Keep in mind that if you do not feel comfortable answering a specific question, you do not have to.

Because we have limited time together and a lot of topics to cover, I may, for the sake of time, jump in and move the discussion forward. But if you have something else to say on the topic, please let me know.

Finally, please turn off any cellular phones, pagers, or other electronic devices for the rest of our discussion.

OK -- Let's get started!

II. Warm-up

1. I'd like to begin by going around the table and having each of you tell us your first name, your due date, and the ages of other children you may have.

III. Eating during pregnancy:

We would like to hear about your eating experiences during this pregnancy,

- 2. When I say the words "eating during pregnancy," What immediately comes to your mind? That is what words or images does that conjure up for you?
- 3. How, if at all, has your eating changed during this pregnancy compared to when you weren't pregnant? (Open-ended, then probe):
 - a. Have you experienced any changes in the foods you <u>*LIKE or DISLIKE*</u> during this pregnancy? If yes: What kinds of changes have you noticed in this regard?
 - i. Can you tell me about any new foods that you <u>*LIKE*</u> now that you <u>*didn't like*</u> when you weren't pregnant? What do you think brought about those changes?
 - ii. Can you tell us about any foods that you <u>DISLIKE</u> now that you used to like when you weren't pregnant? Can you say more about when you began developing an aversion or dislike for these foods during your pregnancy?
 - iii. Are there any new foods that you <u>eat</u> now that you didn't eat when you were not pregnant? Tell me more about that. Why do you think you eat these foods now?
 - iv. Are there any foods that you <u>do NOT eat</u> now but that you ate when you weren't pregnant? Tell me more about that. Why don't you eat those foods now, do you think?
- 4. During this pregnancy, have you *craved* certain foods more than before you became pregnant? What has that been like? Have you craved any foods that you didn't like or didn't care about before you became pregnant? If yes: Tell me about that.
 - a. If I was from Mars visiting Chapel Hill for the first time and never heard of the "cravings" before, how would you describe it to me??
 - i. Possible prompts: "What does a craving feel like?" "Describe how you experience a craving."
 - b. What types of foods do you typically crave?
 - c. What do you usually do about those cravings?
 - i. If you wanted to resist the craving, what would you do?
 - d. How have your cravings *changed* across your pregnancy?
 - e. In what kinds of situations do you typically notice that you are craving certain foods? Tell me about what the triggers are for your cravings. (Time of day? Emotions you are experiencing? Other?)
 - 5. Have you found that there are some foods that taste <u>so good</u> that you can't "just have one" as if you're not totally in control of how much you eat? Can you tell me more about those kinds of experiences and what that has been like for you?

- a. What kinds of foods can you not get enough of? Open-ended first, then probe: Fatty? Sweet? Salty? Cheezy? Or certain textures: Creamy? Chewy? Crunchy? fizzy?
- b. Tell us about the kinds of situations when you find this happening? (Home? Work? Socializing? Shopping? Events? Other?)
- c. Can you think of anything else that might cause you to eat more than you thought you wanted?
 (open-ended, then probe for): Emotions: joy/loneliness? Comfort? When you're with friends/in-laws/partner? Health issues: Fatigue/Nausea? Convenience: Lack of energy to shop for or prepare healthy meals? In the presence of foods? Social situations?
- d. What do you usually do in these situations? How is that the same or different now that you are pregnant, as compared to when you weren't pregnant?
- e. If you wanted to resist the eating more of these foods than you want, what would you do?
- f. Can you tell me about a specific time over the last 1-2 weeks when you felt like you were eating more than you thought you wanted? Can you describe that situation?
 - i. What were you thinking and feeling?
 - ii. What did you do about this? Why? (Note to facilitator: What were their motivations/reasons?

IV. Appetite and eating in the absence of hunger

- 6. Do you ever find yourself wanting to eat even after you've recently finished a snack or a meal? Can you tell me more about that?
 - a. For what <u>kinds of foods</u>, do you tend to want to eat even when you've recently eaten? What about specific situations when you experience this?
 - b. Can you give me an example of when that happened to you?
 - c. How are these urges to eat when you've recently finished a meal or snack the same or different now that you are pregnant as compared with when you weren't pregnant?
 - d. Thinking more generally, what do you usually do when you want to eat even though you've recently had a meal or snack? Is that the same or different now that you are pregnant? Can you say more about that?
 - e. If you specifically wanted to resist the urge to eat after you've had a meal or snack, what would you do?

V. Strategies for resisting food cravings

7. Think about the times you resist a craving and the times you give in – what's different about these times?

- 8. Now think of a time over the past 1-2 weeks when you had a strong food craving but decided NOT to follow it.
 - a. Describe the situation? What were you doing? Thinking? Feeling?
 - b. Why did you decide NOT to eat what you were craving? What did you do to resist the craving?
 - c. Now, thinking more generally, tell me more about what, if anything, you usually do to resist food cravings? How easy or difficult is that for you?
 - d. How is this similar or different now that you are pregnant compared to when you weren't pregnant?
- 9. Now I'd like to brainstorm with you about ways women can resist food cravings. Imagine that I am a good friend of yours and I recently found out I am pregnant for the first time. I have noticed that I've been giving in to my food cravings especially when it comes to foods that I may really enjoy eating, but that I don't think of as healthy. So I come to you, my group of friends, to get some ideas for strategies about how I can resist these cravings.

VI. Knowledge of healthy weight gain and healthy eating for pregnancy

- 10. Do you ever find yourselves eating foods you really enjoy but that you think of as unhealthy? Can you tell me about that? Are these foods easier, harder or about the same to resist now as compared to when you were not pregnant? Why do you think that is so?
- 11. When you initially learned that you were pregnant, did you have certain beliefs about the ideal amount of weight to gain during pregnancy? If no: Was that something you thought about at that time? If yes:
 - a. What were your beliefs about weight gain during pregnancy?
 - b. Where did those expectations come from?
 - c. How, if at all, did your original expectations change over time? Why did they change?
- 12. How much information about eating during pregnancy did you get when you became pregnant? Did your doctor or other healthcare professional talk to you at all about healthy foods and healthy weight gain during pregnancy? If yes: Tell me about those conversations.
- 13. Did you get information from any other sources about weight gain and healthy eating during pregnancy? If yes: Tell me about that.
- 14. [Moderator draws a stick figure on flip chart] This is Leslie and imagine that she is one of your good friends. Leslie just found out she is pregnant for the first time and comes to you for advice about eating and gaining weight during pregnancy.

What suggestions would you give her about eating and weight gain during pregnancy?

- a. Leslie is under the impression that she should eat a lot more now that she is pregnant because everyone tells her that "she is eating for two." What would you tell her about that?
- b. What suggestions could you give her to help resist cravings for food she likes but that she doesn't consider good for her? What strategies would you share?
- 15. Is there anything else you would like to add to our discussion that we haven't talked about?

VI. Wrap-Up and Conclusions.

Thank you very much for your time and thoughts. Before we leave, are there any final ideas or experiences that you want to share with us on these topics? Have there been any other major influences on your diet and food preferences during pregnancy, and how these have changed, that you would like to share?

Figure 1:

The discussion guide used with a focus group cohort of 68 women in North Carolina participating in the Eating Attributes Study regarding women's perceptions, beliefs, and experiences about eating during pregnancy

Table 1.

Demographics of a cohort of 68 pregnant women from North Carolina participating in focus group data collection on food cravings in pregnancy.

Demographics	PEAS Study Full Sample N=458	Focus Group Sample N=68
Age (years)	30.5±4.7	31.3±4.2
Race		
Non-Hispanic white	264 (67.3)	50 (74.6)
Racial/ethnic minority	128 (32.7)	17 (25.4)
Education		
Less than bachelor's	104 (28.4)	12 (18.4)
Bachelor's	108 (29.4)	26 (40.0)
Greater than bachelor's	155 (42.2)	27 (41.6)
Income-to-poverty ratio	3.8±2.0	4.1±1.8
BMI	27.2±6.9	25.8±5.8
Parity		
Nulliparous	250 (54.6)	33 (48.5)
Parous	208 (45.4)	35 (51.5)

Values are mean±SD or n (%)

PEAS= Pregnancy Eating Attributes Study

BMI= Body Mass Index,(kg/m²)

Table 2.

Representative quotes regarding women's experience with food cravings from a qualitative focus group sample of 68 women from North Carolina.

A priori Themes	Selective Quotes		
Descriptions of Cravings	"It's all you can think about." "You just have to have it right then."		
	"Like, in the first pregnancy, I'm, like, oh man, I can eat twice as much. But, I know that's not true anymore. But, I still, like, it's, like, my brain says one thing and my heart says one thing - and my heart always wins. And, I, I don't like that but it's just, that's what I want is what I want and I get cranky if I don't have what I want when I'm pregnant."		
	"When you're really hungry and you really want to eat only you're not necessarily really hungry you just really want to eat that very specific thing."		
	"Mine tend to pass. If I wait long enough. If. I can't go get it, for whatever reason, and I wait a few hours, then eventually I don't care for it anymore."		
	"I'll crave it for days. Until I get it."		
	"I didn't eat nothing till he took me to go get my hamburger at Sonic, that's what I wanted, I didn't want nothing else, cause he'd be like, you don't want to go to Chilies.no, I want that hamburger."		
	"Nothing is going to taste as good."		
Types of Foods Craved	"And my husband will be drinking there, drinking beer. And I smell it, and I immediately, I'm like - oh my God."		
	"I have been craving sushijust the cooked kind, I mean I haven't been eating the raw fish kind but I get a Californ roll as often as I can."		
Strategies for Managing Cravings - Environmental	"Don't buy it so it's not in your house. Don't pack it for lunch if you're atwork, just don't have it around."		
	"I think that having your partner help you out and make good choices makes it easier, especially if like after dinner, they decide to have a piece of fruit rather than like ice cream or something, and you're more likely to do the same."		
	"And it helps if there's not anything sweet in the house. Obviously, it's easier to just be like, well, go to bed."		
	"Our food is downstairs and the room we hang out in at night is upstairs and that is a pretty decent deterrent in itself. Not being close."		
Strategies for Managing Cravings - Behavioral	"Say, like go for a walk, exercise, like exercise releases endorphins, and makes you feel good."		
	"And so I usually just drink water, and rollover and go to sleep."		
	"I try not to let myself get really hungry. Like, plan a snack or a small meal every few hours so that - 'cause I know that i I do get hungry, then I'm gonna go for something that's not very good for me."		
	"I mean I guess if I'm craving sweets, I have a piece of fruit or something instead, see if that helps."		
	"Or just do it in moderation, like if you crave chocolate, don't eat a chocolate cake Try a piece of chocolate first and so how it goes."		
	"Sometimes all I'll really taste is like a little lick and I'm OK. As long as I got it now."		
Strategies for Managing Cravings - Psychological	"I don't feel like I get them as much if I'm really busy."		
	"I find just any interaction with my other child, forces you to forget about it, cause otherwise he's just going run like into ditch or something."		
	"Yeah, I think thinking about the baby helps, like when it's something that's really unhealthy or has like a whole lot of colorants or like caffeine or something else. You know, just thinking about the fact that, you know, not that's it's gonna d harm but just that, you know it's not good for the baby."		
	"My giving into cravings or not is motivated by the health of my baby and what I look like"		
Strategies for Managing	"Well, here's the thingI have a lot of pregnant friends right now and a lot of them are having the same issues I am, andbecause this is my fourth pregnancy and I - each time, I've tried harder and harder but it doesn't work. I just said, you know what, I'd rather give into my cravings than to beat myself up over it and hate myself for it."		

A priori Themes	Selective Quotes
Cravings - Consumption	
	"That's true if you deprive yourself of it, you're just going to even want more later, so then instead of having the piece of chocolate cake, you'll have the half of the chocolate cake."
Emergent Themes Beliefs about the Causes of Cravings	"I want milk, I mean my husband's like, seriously woman, we've got to like every day we're buying another gallon of milk, I said apparently I need it, but I've always liked, but I never drank it as much as I drink it nowI guess she's really developing some bones." [referring to her baby]
	"Cause like I've been eating ice cream like every day, but like I don't really eat that much calcium, like I don't drink milk or anything like that, so it's like, okay, and that's why I don't really get too concerned about it, you know, cause I just feel like, okay this, if I'm craving this, there's got to be a reason."
	"Like I think I was drawn to the Raisin Bran, maybe for the iron or maybe something in it that my body knew was in that. And so I try to kind of pay attention to what am I craving and try, think about what is in that product that might be beneficial"
Justifications for Satisfying Cravings	"I was like I just did prenatal yoga, I'm getting my sundae, it's OKJustified it."
	"Yesterday I had a burger, which I hadn't had since before I got pregnant and for me, my excuse was I ate healthy during the week and I deserve eating something that's not healthy."
	" I want to stay in shape, whatever. But, it's like, oh, I'm pregnant, like, I can do this. I'm eating for two, so I kind of, like, rationalize it a little bit when I have that impulse to eat something."
	"For me, being pregnantsociety tells you, like, oh, you're eating for two. Oh, you're pregnant. And so when I have that urgewhen I'm not pregnant, I can kind of fight that a little bit more."
	" is this [eating] pregnant-related or am I just allowing myself the indulgences that I didn't, when I craved before?"
	"Well, I mean, I've gotten past the point where I know you're not really eating for two."
	"I think even, even a couple of us have made a joke about you're eating for two, but I think in reality, that doesn't translate into that, but it's like, I'm going to justify this ice cream that I'm eating that I wouldn't normally eat."
Psychological Aspects of Cravings	"Stressed out. Definitely when I'm stressed. I'm, like, I'm making myself some egg whites cookie dough And it's really bad but I just can't stop myself from doing it. And it immediately takes my stress away."
	"Something that will put you just in an extremely bad mood or agitated if you don't get it. Or extremely happy [when you do get it]."
	"Cravings are like intense. Like I have to have this now or I'm going to hurt someone normally, I'd be like oh a cookie would be nice, but now it's like, if I don't get a hamburger, I'm gonna cry about it."
	"I still feel guilty if I, you know, had too much. Maybe not as much as when I'm not pregnant but I still kind of feel like - oh, I shouldn't, I shouldn't have eaten that or what not."
	"I have [used strategies to resist foods] on like diet plans but not when pregnant. I feel less guilty during pregnancy."
	"I'd rather give into my cravings than to beat myself up over it and hate myself for it. You know what I mean?"
	"Stressing about it was making it worse, cause then I was obsessing over everything that I put in my mouth."
	"I had a doctor tell me really early on, I had a lot of anxiety really early on, she was like if you want to eat something and it makes you feel better, the best thing that you can do is to not stress yourself out about it."
	"It might be more nostalgic than anything, but I really wanted - I don't eat a lot of processed foods but I really wanted Chef Boyardee ravioli."
	"I think that's part of it too for filling that craving, is that emotional need. Because I think that like I said with my ties with my Spanish root, I think it's also the comfort factor, cause a lot of the times, my godmother were making that food and it reminds me of her."