Published in final edited form as:

Matern Child Health J. 2019 October ; 23(10): 1400–1413. doi:10.1007/s10995-019-02776-7.

“Baby wants tacos”: Analysis of health-related Facebook posts from young pregnant women

Elizabeth Marshall, MD,

Department of Family Medicine, University of Michigan Medical School

Margaret Abigail Moon, MD,

Department of Family Medicine, University of Michigan Medical School

Anicia Mirchandani,

University of Michigan Medical School

Grace Smith,

School of Kinesiology, University of Michigan

Lauren P. Nichols, MPH,

Department of Family Medicine, University of Michigan Medical School

Xinyan Zhao,

School of Information, University of Michigan

VG Vinod Vydiswaran, PhD,

Department of Learning Health Sciences, School of Information, University of Michigan

Tammy Chang, MD, MPH, MS

Department of Family Medicine, University of Michigan Medical School; Institute for Healthcare Policy and Innovation, University of Michigan.

Abstract

Purpose: Pregnant young women gain more weight than recommended by the National Academy of Medicine, increasing the likelihood of adverse maternal and fetal outcomes. The purpose of this study is to use online social media to understand beliefs and practices surrounding weight gain, diet and exercise during pregnancy among young women.

Methods: Facebook posts were mined from young women ages 16 to 24 during pregnancy who were consented from two Midwest primary care clinics serving low-income communities. Natural

Corresponding Author: Tammy Chang, MD MPH MS, University of Michigan, Department of Family Medicine, 2800 Plymouth Road, Building 14- Room G107, Ann Arbor, MI 48109-2800, Phone (734) 647-3305, Fax (734) 763-7770, tachang@med.umich.edu.

Conflict of interest statement

Elizabeth Marshall has no potential conflict of interest to report.

Margaret Abigail Moon has no potential conflict of interest to report.

Anicia Mirchandani has no potential conflict of interest to report.

Grace Smith has no potential conflict of interest to report.

Lauren Nichols has no potential conflict of interest to report.

Xinyan Zhao has no potential conflict of interest to report.

VG Vinod Vydiswaran has no potential conflict of interest to report.

Tammy Chang has no potential conflict of interest to report.

language processing was used to identify posts related to weight gain, exercise and diet by keyword searching. Two investigators iteratively coded the mined posts and identified major themes around health behaviors. Outcome measures included the frequency of posts and major themes regarding health behaviors during pregnancy.

Results: Participants ($n = 43$) had a mean age of 21 ($SD = 2.3$), and the largest subgroups identified as black (49%; 26% white, 16% Hispanic, 9% other) and having graduated from high school (49%; 24% completed some high school and 24% completed at least some post-secondary education). Among the 2899 pregnancy posts analyzed, 311 were related to weight. Major themes included eating behaviors and cravings (58% of identified posts), body image (24%), the influence of family, partners and friends (14%), and the desire to exercise (4%).

Conclusions: Facebook posts revealed that young women often frame their thoughts and feelings regarding weight gain in pregnancy in the context of food cravings and body image and that friends and family are important influencers to these behaviors.

Keywords

pregnancy; weight gain; social media; Facebook; cravings; adolescent

Introduction

Excess weight gain during pregnancy is a serious health concern affecting the majority of pregnant adolescents and young women in the US, contributing to the risk of long-term obesity in mother and child and leading to delivery complications such as operative delivery and still birth.(1–8) The National Academy of Medicine (NAM) guidelines for weight gain during pregnancy apply to both adults and adolescents, but the majority of pregnant adolescents and young adults gain more weight than recommended by the NAM.(9–12) The most recent literature defines adolescence as occurring between the ages of 10 and 24.(13) Pregnant and obese young women are at increased risk for excess weight gain in pregnancy. (9, 11, 14) Despite many studies of this patient population, there is a significant gap in health care providers' understanding of youth perceptions and knowledge surrounding weight gain during pregnancy.

Face-to-face interactions, either in the health care clinic, or during individual interviews and focus groups, are limited in their ability to provide insight into the life of youth. Youth often have difficulty verbalizing their beliefs due to their ongoing cognitive, social, and emotional development and limited health literacy.(15–19) Furthermore, discomfort with speaking to adults or health care providers may lead to desirability bias.(20)

Online social media use is pervasive and central to the way youth orient themselves to the world and others and provides a window into their unfiltered values and beliefs. According to Pew Research Center, 88% of 18–29 year-olds reported using Facebook in 2016, compared to 80% in 2018.(21,22) More than one-third of adolescents check their profile page daily and another 25% check every few days.(21) In this study, we performed online social media mining to gain further insight into the lives of pregnant youth, specifically around body image, food, exercise, and influences during pregnancy.

Methods

Forty-three pregnant women ages 16–24 from two separate Midwest primary care clinics in low income areas consented for longitudinal Facebook mining. Demographic data (including age, race, educational status, household income, household members and relationship status) were self-reported on an online questionnaire at the first study visit. Notably, the sample could be characterized as an underserved population as demonstrated by the high proportion of racial/ethnic minorities and low median annual household income (3800\$). Additionally, gestational weight gain was calculated by taking the difference between each participant's weight at the final obstetric visit and pre-pregnancy weight obtained at the first prenatal visit. These weights were extracted by retrospective chart review. Gestational weight gain was characterized as either below, within, or above the NAM guidelines.

Extraction of Facebook posts was performed using the Facebook application program interface (API) at two separate occasions in 2016- once upon recruitment (usually in first trimester or early second trimester) and again in the third trimester. Prior to their initial prenatal visit and recruitment, participants were unaware of social media mining and did not have an opportunity to curate their social media history. At each extraction, participants granted access to their accounts by signing into Facebook during a standard clinic visit. Access was immediately terminated after the participants logged out of their accounts. To protect the privacy of non-consented individuals, items posted by non-consented individuals was not retrieved or analyzed. Posts containing emojis were also analyzed. However, photos were not evaluated as part of this study to protect the privacy of non-consented individuals who may have appeared in photos. Posts pertaining to weight gain, food and exercise were identified by finding keywords (e.g., craving, food, fat, exercise) and their morphological variants through the use of Natural Language Processing (NLP). See Appendix A for full list of search terms. These posts were sorted by time stamp so that those outside of pregnancy were excluded from analysis. The gestational age at each post was calculated using the time stamp and last menstrual period (LMP). Two investigators coded these posts and determined recurring major themes and subthemes relating to weight gain. Only English-language posts were analyzed. Iterative coding was used to establish a formal codebook once consensus was gained between two investigators (GS, AM). A third investigator was used to decide any conflicts (TC). Outcomes identified included the major themes and subthemes related to weight gain and the frequency of posts belonging to each of these categories. This study was approved by the Institutional Review Board of the University of Michigan (HUM00104989).

Results

Quantitative Results

The study included 43 young women aged 16–24. Approximately 2% of posts were Spanish language and were not analyzed. Participants ($n = 43$) had a mean age of 21 ($SD = 2.3$), and the largest subgroup identified as black (49%; 26% white, 16% Hispanic, 9% mixed race, Native American, or other). The largest subgroup graduated from high school (49%), while 24% completed only some high school and 24% completed at least some post-secondary education. See Table 1 for participant characteristics.

Of all mined posts (n=2899), 311 posts included information relating to health behaviors in pregnancy. The most common themes identified in these posts were eating behaviors/ cravings, body image, exercise and the influence of family, partners and friends. Representative posts and frequency of posts related to each theme and subtheme can be found in Tables 2–5. Gestational ages corresponding to each quotation are included in each table under the column titled “Gestational age at the time of post”. Extractions occurred once in the first trimester or early second trimester and again in the third trimester.

Qualitative Results

The most common themes amongst health-related posts in pregnancy were those pertaining to food and cravings, accounting for 58% of all health-related Facebook posts. Among food-related posts, 52% referenced cravings for specific foods (“up craving chicken nuggets with sweet and sour sauce and a caramel frappe with extra caramel with a medium fry fresh asf”). Only 8% of food posts referenced foods that would be commonly considered to be healthy (ie., fruit and vegetables) in accordance with USDA recommendations.(23) Additionally, 8% of posts cited pregnancy-related discomfort as a motivator of a food behavior (“haven’t kept anything down in 3 days... now im craving ichiban”). Posts detailing the consumption of large quantities of food made up 12% of total food posts (“i’m having the type of day where i just want to eat eat and eat. i think that’s what i’m going to do”). Finally, 8% of these posts referenced the babies’ desires to eat certain foods (“my little baby love bacon, i crave it all day i’m about to make me a bacon bagel sandwich”).

Posts concerning body image were categorized as those with positive, negative and neutral tones. Thirty-nine percent of these posts reflected a neutral stance towards the changes occurring to their bodies during pregnancy (““my stomach is starting to shape and get bigger lol and a lil heavy”). Negative posts accounted for 35% of posts (“my boobs get in the way as much as my stomach does i want my little titts back”). Positive posts accounted for 26% of the total body image posts (“it’s so cute how my belly is starting to poke out i swear im growing overnight but im still smaller then an average 5-month pregnant woman”).

Subjects cited partners (“had a great date with my baby today. went to red robin and got a free birthday burger, stopped by denny’s and got a free birthday breakfast, and went to the park to walk it all off. now i’m sick and tired. but it was worth it.! thank you babe. i love you”), family members (“i crave slushies all day everyday , and i get what i want because my momma loves me”) and friends (“real friends satisfy your cravings when you’re pregnant s/o 2 [name]!! hot wings & fries in the making”) as enabling behaviors surrounding eating and exercise. The majority of the posts cited family members and friends (72.1%) and partners (25.6%) as influencing their health-related behaviors– most commonly, with regards to their food choices. The remaining portion of these posts cited more nonspecific influencers (“the hardest thing in the world is to stay positive and healthy when the one you love is damn near gone, & everything else comes before you”). None of the posts described direct recommendations made by companions regarding weight gain but rather narrated instances in which food behaviors had been directly or indirectly enabled by the companion (“so my mom [name] made a strawberry shortcake cake with cheese cake included and

suprised me to a very good dinner with some family i love her so much even the impossible is possible with her #mysuperwoman”).

Posts regarding exercise in pregnancy accounted for the smallest proportion of total weight-related posts (4%). These posts were divided equally between those mentioning having exercised, or planning to exercise (“took little baby for a run at the park... it’s such a nice day”), those wanting to exercise more (“dawg, i’m playing just dance with my lil sister & let’s just say my ass need to hit the gym, a bitch is mf tide”) and those soliciting help completing their exercise goals (“i think i wanna go walk around the mall who wants to go with me?”).

Discussion

Facebook posts of young women provide unique and unfiltered insight into their beliefs surrounding health behaviors during pregnancy. This sample specifically represents an underserved population as demonstrated by the high proportion of ethnic minorities and low median annual household income (\$3800). This research demonstrates that young pregnant women commonly post about topics impacting weight gain during pregnancy, which include eating behaviors, exercise habits, issues around body image and individuals who influence their health behaviors. The unique methods of this study allowed examination of participants’ processed thoughts in a comfortable and familiar medium to participants, which is often not afforded in a traditional face-to-face interview. In regards to eating behaviors, our findings suggest that not only do young women post frequently about cravings and desires for typically unhealthy foods, but that they will also go to great lengths to satisfy these desires including walking to fast food restaurants and soliciting friends to drive them or deliver food to them. The association between excess gestational weight gain and the frequency of food cravings- specifically high fat and fast foods- has been demonstrated in other longitudinal studies. (24, 25) With these habits and desires in mind, health care providers can better engage in relatable conversations with young pregnant women in order to promote healthy weight gain during pregnancy. While a health care provider might typically inform a patient of NAM guidelines for weight gain during pregnancy, very few young pregnant women post about weight gain directly or exact pounds gained. This data suggests that discussing cravings and mitigating those cravings may be a more patient-centered approach to discussing recommended weight gain during pregnancy. Likewise, health care providers may approach exercise during pregnancy by asking who young pregnant women could identify as an exercise partner. Our results suggest that young women are generally interested in engaging in physical exercise during pregnancy and prefer to do so with others (see Table 6). As demonstrated in previous qualitative analyses, emotional support from exercise partners contributes to greater self-efficacy in implementing exercise behaviors. (26, 27)

Body image was also a commonly discussed topic on social media among young pregnant women. Those providing health care to young pregnant women should be aware that their patients are concerned and posting about body image, in both a positive and a negative light. Previous studies have found that women value discussions with providers about weight gain and body image during pregnancy. (28) Some women in our study viewed weight gain and

changes in their body as positive signs of healthy fetal status while some viewed weight gain as negative and commented on the desire to return to their pre-pregnancy body shape quickly after delivery. Traditionally, health care providers focus on healthy weight gain recommendations during a woman's pregnancy, but these posts suggest that when caring for young pregnant women, it may be impactful and relevant to their health framework to discuss weight gain in regards to body image as this has been shown to have associations with gestational weight gain. Previous qualitative studies have reflected this association. In particular, lower attractiveness scores and dissatisfaction with body weight earlier in pregnancy correspond with greater gestational weight gain. (29, 30) Questionnaires evaluating body image during pregnancy could be easily implemented in primary care practice and could be potentially useful to identifying those at-risk for exceeding recommendations for gestational weight gain. (30,31)

As expected, but not frequently acknowledged by health care providers, young pregnant women are especially subject to external influences regarding health behaviors. Participants frequently posted about both healthy and unhealthy behaviors that were influenced by family, friends, and partners. Rather than limiting counseling to directive education around eating and exercise as it relates to weight gain in pregnancy, health care providers could discuss healthy behaviors by considering the messages they are receiving from important people in their lives and those who encourage or discourage their choices. A 2016 study by Cheng et al. found an inverse relationship between partner support and gestational weight gain, with increased perceived partner support corresponding with healthier gestational weight gain. Conversely, a qualitative study conducted in 2016 highlighted that pregnant women often perceive pressure from partners and family members to "eat for two" as a barrier to limiting gestational weight gain. (32, 33) Encouraging partners, friends and family members to accompany young pregnant women to their visits may also represent an opportunity to provide education to patients as well as their family and friends.

Limitations

Our research demonstrates a novel approach to understanding an underserved population and highlights unique perspectives held by this group. However, we acknowledge the limitations of our research. Like traditional methods of collecting qualitative data, social media posts and mining may only show one facet to a multi-faceted phenomenon. Women may post one sentiment, but feel or behave differently in real life. Additionally, because our study population is comprised primarily of low-income minority young women, our findings may not be generalizable to other populations. Furthermore, we acknowledge that participants in our study may have amplified their posts in order to garner a desired response from peers and that these amplified posts may not always reflect their ultimate actions. Though participants were not aware of the research focus of the study during social media mining, participants could have potentially filtered or altered their responses after the first mining in anticipation of a second mining of their data. It is also possible that despite our efforts to include an exhaustive list of words related to weight-gain in pregnancy, our key word search may have systematically omitted posts that may have otherwise informed our research question. The interpretation and coding of the Facebook posts was performed by at least two

investigators. However, we acknowledge the limitation of interpreting text-based data in assessing complex sentiments such as sarcasm and humor.

Conclusions

Facebook posts of young women provided unfiltered insights into their thoughts and behaviors around health during pregnancy. The posts revealed that young women often frame their thoughts and feelings regarding weight gain in pregnancy in the context of food cravings and body image. For example, young women posted frequently about giving in to cravings. Using this knowledge, healthcare providers could target conversations about healthy eating and appropriate weight gain in pregnancy by acknowledging cravings and providing healthier alternatives that make healthy eating convenient. For example, providers might discuss strategies to ensure that healthy snacks are the foods that are visible and within reach at home and to think head to order healthier alternatives at frequented fast food chains. Previous studies have demonstrated that, though young pregnant women acknowledge the importance of a healthy and well-balanced diet, they are unwilling to sacrifice convenience and affordability. (34) Social media posts by young women also demonstrate that friends and family are important influencers to weight-related behaviors during pregnancy. Providers should acknowledge the impact that such persons have, but also empower young women to make healthy choices, especially during pregnancy. While acknowledging that inappropriate gestational weight gain is a problem that faces both adolescent and adult pregnant women, healthcare providers may better engage young pregnant women in particular in more meaningful conversation and encourage change by utilizing a youth-centered framework of body image, cravings and influencers during pregnancy.

Appendix A

Exercise	Diet	Body image / weight gain	Pregnancy
<ul style="list-style-type: none"> • work out • sweat • run • walk • gym • bike • move • bicycle • perspiration • be active • active • yoga • exercise • stairs • play • race • squat • work • treadmill • elliptical • dumb bell • bench press • swim • jog 	<ul style="list-style-type: none"> • vegetable • pop, soda • fruit • craving • hungry • starving • full • quarter pounder • McDonalds • greasy • chips • eat • snack • energy • starved • nosh • starvation • protein • dairy • carbs • water • yogurt • cheese • meat • fish • burger • taco 	<ul style="list-style-type: none"> • weight, weight gain • fat, chubby • pregnant • bump, belly • gain, pounds, lb, scale • heavy, big, huge • wobble • tiny, small • overweight, obese • large, big, wide • butt, buttocks, stomach • shape, figure, body • boobs, breast, chest • bulge • fatness, adipose • belittled • abdomen, abs • fleshy • fatten, fatty • torso, tummy • stretch marks, stretch • booty, ass • flat • flabby • hippo, cow, pig • ugly • beautiful, pretty, cute 	<ul style="list-style-type: none"> • preg • pregna • knocked up • bun (in the oven) • baby • with child • with baby • expecting

Exercise	Diet	Body image / weight gain	Pregnancy
	<ul style="list-style-type: none"> • steam • cook • fry • bake • cook • bread 	<ul style="list-style-type: none"> • skinny, fit • feet • swollen, swell, swoll • glow • healthy, unhealthy • chunk, chunky • tit, tits 	

Abbreviations

LMP Last menstrual period

References

1. Siega-Riz AM, Viswanathan M, Moos MK, Deierlein A, Mumford S, Knaack J, et al. A systematic review of outcomes of maternal weight gain according to the Institute of Medicine recommendations: birthweight, fetal growth, and postpartum weight retention. *Am J Obstet Gynecol.* 2009;201(4):339 e1–14. [PubMed: 19788965]
2. Oken E, Rifas-Shiman SL, Field AE, Frazier AL, Gillman MW. Maternal gestational weight gain and offspring weight in adolescence. *Obstet Gynecol.* 2008;112(5):999–1006. [PubMed: 18978098]
3. Nehring I, Schmoll S, Beyerlein A, Hauner H, von Kries R. Gestational weight gain and long-term postpartum weight retention: a meta-analysis. *Am J Clin Nutr.* 2011;94(5):1225–31. [PubMed: 21918221]
4. Fraser A, Tilling K, Macdonald-Wallis C, Hughes R, Sattar N, Nelson SM, et al. Associations of gestational weight gain with maternal body mass index, waist circumference, and blood pressure measured 16 y after pregnancy: the Avon Longitudinal Study of Parents and Children (ALSPAC). *Am J Clin Nutr.* 2011;93(6):1285–92. [PubMed: 21471282]
5. Gould Rothberg BE, Magriples U, Kershaw TS, Rising SS, Ickovics JR. Gestational weight gain and subsequent postpartum weight loss among young, low-income, ethnic minority women. *Am J Obstet Gynecol.* 2011;204(1):52 e1–11. [PubMed: 20974459]
6. Viswanathan M, Siega-Riz AM, Moos MK, Deierlein A, Mumford S, Knaack J, et al. Outcomes of maternal weight gain. *Evid Rep Technol Assess (Full Rep).* 2008(168):1–223.
7. Sridhar SB, Darbinian J, Ehrlich SF, Markman MA, Gunderson EP, Ferrara A, et al. Maternal gestational weight gain and offspring risk for childhood overweight or obesity. *Am J Obstet Gynecol.* 2014;211(3):259 e1–8. [PubMed: 24735804]
8. Rong K, Yu K, Han X, Szeto IM, Qin X, Wang J, et al. Pre-pregnancy BMI, gestational weight gain and postpartum weight retention: a meta-analysis of observational studies. *Public Health Nutr.* 2015;18(12):2172–82. [PubMed: 25411780]
9. Harper LM, Chang JJ, Macones GA. Adolescent pregnancy and gestational weight gain: do the Institute of Medicine recommendations apply? *Am J Obstet Gynecol.* 2011;205(2):140 e1–8. [PubMed: 21620365]
10. Institute of Medicine. *Weight gain during pregnancy: reexamining the guidelines.* Washington DC: National Academies Press; 2009.
11. Groth SW, Holland ML, Kitzman H, Meng Y. Gestational weight gain of pregnant African American adolescents affects body mass index 18 years later. *J Obstet Gynecol Neonatal Nurs.* 2013;42(5):541–50.
12. Joseph NP, Hunkali KB, Wilson B, Morgan E, Cross M, Freund KM. Pre-pregnancy body mass index among pregnant adolescents: gestational weight gain and long-term post partum weight retention. *J Pediatr Adolesc Gynecol.* 2008;21(4):195–200. [PubMed: 18656073]
13. Sawyer S, Azzopardi P, Wickremarathne D, Patton G The age of adolescence. *Child and Adolescent Health.* 2018; 2(3):223–228. [PubMed: 30169257]
14. Ogden CL, Carroll MD, Kit BK, Flegal KM. Prevalence of childhood and adult obesity in the United States, 2011–2012. *JAMA.* 2014;311(8):806–14. [PubMed: 24570244]

15. Chang T, Chopra V, Zhang C, Woolford SJ. The role of social media in online weight management: systematic review. *J Med Internet Res*. 2013;15(11):e262. [PubMed: 24287455]
16. Nelson ML, Quintana SM. Qualitative clinical research with children and adolescents. *J Clin Child Adolesc Psychol*. 2005;34(2):344–56. [PubMed: 15901235]
17. Manganello JA. Health literacy and adolescents: a framework and agenda for future research. *Health Educ Res*. 2008;23(5):840–7. [PubMed: 18024979]
18. Smith KL, Kerr DA, Fenner AA, Straker LM. Adolescents just do not know what they want: a qualitative study to describe obese adolescents' experiences of text messaging to support behavior change maintenance post intervention. *J Med Internet Res*. 2014;16(4):e103. [PubMed: 24713407]
19. Bassett R, Beagan BL, Ristovski-Slijepcevic S, Chapman GE. Tough teens the methodological challenges of interviewing teenagers as research participants. *JFournal of Adolescent Research*. 2008;23(2):119–31.
20. Raacke J, Bonds-Raacke J. MySpace and Facebook: applying the uses and gratifications theory to exploring friend-networking sites. *Cyberpsychol Behav*. 2008;11(2):169–74. [PubMed: 18422409]
21. Greenwood S, Perrin A, Duggan M Social media update 2016: Facebook usage and engagement is on the rise, while adoption of other platforms holds steady. Pew Research Center 2016.
22. Smith A, Anderson M Social media use in 2018: A majority of Americans use Facebook and YouTube, but young adults are especially heavy users of Snapchat and Instagram. Pew Research Center, 2018.
23. USDA [ChooseMyPlate.gov](http://www.choosemyplate.gov). Choose My Plate 2018 [Available from: www.choosemyplate.gov].
24. Blau L, Orloff N, Flammer A, Slatch C, Hormes J Food craving frequency mediates the relationship between emotional eating and excess weight gain in pregnancy. *Eating Behaviors*. 2018; 31:120–124. [PubMed: 30253292]
25. Orloff N, Flammer A, Hartnett J, Liquorman S, Samelson R, Hormes J Food cravings in pregnancy: Preliminary evidence for a role in excess gestational weight gain. *Appetite*. 2016; 105 (1): 259–265. [PubMed: 27215835]
26. Rackow P, Scholz U and Hornung R (2015), Received social support and exercising: An intervention study to test the enabling hypothesis. *Br J Health Psychol*, 20: 763–776. [PubMed: 25854295]
27. Carron A, Hausenblas H and Mack D (1996), Social Influence and Exercise: A meta-analysis. *Journal of Sport and Exercise Psychology*, 18: 1–16. [Doi.org/10.1123/jsep.18.1.1](https://doi.org/10.1123/jsep.18.1.1)
28. Watson B, Broadbent J, Skouteris H and Fuller-Tyszkiewicz M (2016), A Qualitative Exploration of Body Image Experiences of Women Progressing Through Pregnancy. *Women and Birth*, 29: 72–79. [Doi:10.1016/j.wombi.2015.08.007](https://doi.org/10.1016/j.wombi.2015.08.007) [PubMed: 26342758]
29. Hill B, Skouteris H, McCabe M and Fuller-Tyszkiewicz M (2013), Body Image and Gestational Weight Gain: A Prospective Study. *Journal of Midwifery & Women's Health*, 58: 189–194.
30. Sui Z, Turnbull D, Dodd J Effect of body image on gestational weight gain in overweight and obese women. *Women and Birth*. 2013; 26(4): 267–272 [PubMed: 23920103]
31. Fuller-Tyszkiewicz M, Skouteris H, Watson B, Hill B Body image during pregnancy: an evaluation of the suitability of the body attitudes questionnaire. *BMC Pregnancy Childbirth*. 2012; 12:91. [PubMed: 22950761]
32. Cheng ER, Rifas-Shiman SL, Perkins ME, et al. The Influence of Antenatal Partner Support on Pregnancy Outcomes. *J Womens Health (Larchmt)*. 2016;25(7):672–9. [PubMed: 26828630]
33. Kim L, Koleitat M, Whaley D A Qualitative Study to Examine Perceptions and Barriers to Appropriate Gestational Weight Gain among Participants in the Special Supplemental Nutrition Program for Women Infants and Children Program. *J Pregnancy*. 2016. Epub 2016 Jun 15
34. Wise NJ (2015), Pregnant Adolescents, Beliefs About Healthy Eating, Factors that Influence Food Choices, and Nutrition Education Preferences. *Journal of Midwifery & Women's Health*, 60: 410–418.

Implications and Contributions

Healthcare providers face a unique challenge when it comes to counseling young women on healthy weight gain pregnancy. This analysis of Facebook posts shows that to better engage this population, discussions should specifically address unhealthy food cravings, body image issues and the daily influence provided by family, friends and partners.

Author Manuscript

Author Manuscript

Author Manuscript

Author Manuscript

Table 1.

Demographic characteristics of sample, n=43

Demographic	Category	Number (%)
Race (n=43)	Non-Hispanic black	21 (49%)
	Non-Hispanic white	11 (26%)
	Hispanic	7 (16%)
	Non-Hispanic mixed race or other	3 (7%)
	Native American	1 (2%)
Age (n=43) (Mean age 21; standard deviation 2.3 years; range 16–24)	Younger than 18	4 (9%)
	Between 18 and 21	19 (44%)
	Older than 21	20 (47%)
Educational status (n=42)	Completed some high school	13 (31%)
	High school graduate	20 (47%)
	Completed some post-secondary education ^a	9 (21%)
Median household annual income (n=28)^a	\$3800 (range \$0–40,000)	
Household members (n=42)^c	Subject's children	12 (29%)
	Parent	11 (26%)
	Significant other (boyfriend, fiancé, husband)	11 (26%)
	Roommate	5 (12%)
	Lives alone	2 (5%)
Relationship status (n=37)^b	Single, never married	16 (43%)
	In a relationship but not married	20 (54%)
	Married	1 (2%)

^aSubjects younger than age 18 were all counted as completing some high school; 2 of 4 were currently enrolled in school^bQuestion not asked to participants under age 18^cCategories not mutually exclusive

Table 2:

Number of subjects posting per theme and number of posts on each theme during pregnancy

Theme	Number of subjects (Total subjects n=42)	Number of posts (% of total) (Total number of weight-related posts= 311)
Food/Cravings	25	180 (58%)
Body Image	22	75 (24%)
Influencers	16	43 (14%)
Exercise	12	13 (4%)

Table 3:

Representative posts on eating behaviors and related subtheme

Major Theme: Eating behaviors				
Number of participants posting about theme: 25 women				
Total number of posts about theme: 180 posts				
Subtheme	Demographics	Gestational age at time of post	Weight data	Facebook post
<i>Cravings (n=94)</i>	23 yo, black / non-Hispanic, vocational training	5 weeks	BMI 22.3, +37lbs, over	"i want everything 2 eat but i'll settle 4 home made cheese burgers & some onion rings"
	22 yo, black / non-Hispanic, some college	21 weeks	BMI 25.9, +37lbs, over	"i need fries from mcdonald's and a icee from burger king!"
	20 yo, black / non-Hispanic, high school graduate	22 weeks	BMI 33.6, -3lbs, under	"I crave sugar...sugar...sugar...n more sugar"
	23 yo, black / non-Hispanic, vocational training	23 weeks	BMI 22.3, +37lbs, over	"i'll try the no pork thing after this baby. my cravings are too real! wtbs; fried pork chops, mac & cheese, broccoli w/ cheese, & biscuits 4 dinner"
	17 yo*	24 weeks	BMI 25.5, +17lbs, within	"up craving chicken nuggets with sweet and sour sauce and a caramel frappe with extra caramel with a medium fry fresh asf"
	22 yo, white / non-Hispanic, some high school	30 weeks	BMI 19.2, +35lbs, within	"I'm having the type of day where I just want to eat eat and eat. I think that's what I'm going to do."
<i>"Baby wants..." (n=15)</i>	19 yo, black / non-Hispanic, high school graduate	11 weeks	BMI 22.2, +45lbs, over	"my little baby love bacon, i crave it all day i'm about to make me a bacon bagel sandwich"
	17 yo*	13 weeks	BMI 25.5, +17lbs, within	"i absolutely hate doritos but ...my baby seems to love them i just wannathrow every pack of doritos i have away cause every time i look at them it's like my soul tell me to eat them"
	24 yo, black / non-Hispanic, high school graduate	17 weeks	BMI 22.6, +30.5lbs, within	"so me and peanut just ate and i think peanut still hungry cause for the first time after eating i'm not full"
		34 weeks		"i have stuffed my face three times today...i feel super fat lol but i know my baby girl ate good..."
<i>Feeling unwell as justification for unhealthy eating (n=14)</i>	20 yo, mixed / Hispanic, some high school	11 weeks	BMI 19.7, +36lbs, over	"haven't kept anything down in 3 days... now im craving ichiban"
	17 yo*	14 weeks	BMI 25.5, +17lbs, within	"i don't see how y'all eat so much when y'all pregnant... my appetite has decreased tremendously. i don't want to eat anything or have a taste for anything. i only cook for [name] and my family literally. i snack on things throughout the day but it's never a whole entire meal i can eat"
<i>Sharing diet-related behaviors with others (n=74)</i>	23 yo, black / non-Hispanic, vocational training	18 weeks	BMI 22.3, +37lbs, over	"about 2 make pepper steak & rice 4 the first time! thinking about corn bread w/ it. idk! what y'all make w/ y'all pepper steak & rice?"

Major Theme: Eating behaviors				
Number of participants posting about theme: 25 women				
Total number of posts about theme: 180 posts				
Subtheme	Demographics	Gestational age at time of post	Weight data	Facebook post
	22 yo, white / non-Hispanic, high school graduate	25 weeks	BMI 24.5, +47lbs, over	“shout out to all the pregnant girls on my facebook! we have a reason to stuff our faces lol”
	22 yo, mixed / non-Hispanic, high school graduate	33 weeks	BMI 19.2, +13lbs, under	“omg i have the worst stomach ache i just ate potato soup, a yogurt, a pickle, peaches and drank a cup of pickle juice.. lmaaaaa”
Legend: * = demographics not completed by participant + / - = positive / negative weight gain during pregnancy				
Order of listed data: Demographics header = Age (years), race / ethnicity, highest education level obtained Weight data header = Pre-pregnancy body mass index (BMI), weight gain during pregnancy, Institute of Medicine (IOM) classification of weight gain at the end of pregnancy				
Common social media abbreviations: lol = “laughing out loud” lmao = “laughing my ass off” wtbs = “with that being said” asf = “as fuck” omg = “oh my god/gosh” idk = “I don’t know”				

Table 4:

Representative posts on body image and related subthemes

Major Theme: Body Image				
Number of participants posting about theme: 22 women				
Total number of posts about theme: 75 posts				
Sub-theme	Demographics	Gestational age at time of post	Weight data	Facebook Post
<i>Positive Image</i> (n=21)	23 yo, black / non-Hispanic, vocational	8 weeks	BMI 29.8, +42lbs, over	"cant hide it no more little baby getting me fat it's going to be a long summer but it's worth it #blessed"
		16 weeks		"it's so cute how my belly is starting to poke out i swear im growing overnight but im still smaller then an average 5 month pregnant woman"
	22 yo, mixed race / non-Hispanic, high school graduate	19 weeks	BMI 19.2, +13lbs, under	"bellys are so cute in hoodies"
	23 yo, black / non-Hispanic, vocational	20 weeks	BMI 22.3, +37lbs, over	"i'm 130 lbs now idec if i stay fat after this baby i never want 2 be skinny like i was again i know that !! i've gained 17 lbs in 4 months ! i'll be happy if i make it to 145 lbs by the end of this pregnancy . #teamthickagainplease"
	17 yo*	26 weeks	BMI 25.5, +17lbs, within	"actually convinced i'm in pretty good shape and will snap back quick asf"
	16 yo*	29 weeks	BMI 26.1, +14lbs, under	"idc what nobody say i'm beautiful asf"
<i>Negative Image</i> (n=29)	16 yo*	5 weeks	BMI 26.1, +14lbs, under	"she called me a fat hippo [name]"
	19 yo, mixed race / non-Hispanic, high school graduate	20 weeks	BMI 23.4, +39lbs, over	"my face getting chunky"
	22 yo, white / non-Hispanic, some high school	21 weeks	BMI 19.3, +35lbs, within	"i barely have any clothes that fit anymore thankful for the one flannel out of the 3 i have that still fits. #pregnantproblems"
	22 yo, white / non-Hispanic, high school graduate	22 weeks	BMI 24.5, +47lbs, over	"when your not even 6 months pregnant and someone ask you of your about to pop. fuckk im going to get huge"
	22 yo, mixed race / non-Hispanic, high school graduate	33 weeks	BMI 19.2, +13lbs, under	"my boobs get in the way as much as my stomach does i want my little titts back"
	20 yo, mixed race / Hispanic, high school graduate	35 weeks	BMI 20.1, +26lbs, within	"only cause i look humongous!!! 8 months down, hurry up fat man!!!"
<i>Neutral Image</i> (n=32)	22 yo, white / non-Hispanic, some high school	7 weeks	BMI 19.3, +35lbs, within	"call me crazy but i can already see a difference in my stomach. if anyone really knows me, they would know i've always had a very flat tummy. i will constantly take pictures of my stomach to see the difference. #7weeks2days our little baby is growing."
	19 yo, black / non-Hispanic, high school graduate	14 weeks	BMI 22.2, +45lbs, over	"idk why my stomach look that big on that picture it's not big at all y'all"
	19 yo, white / non-Hispanic, some high school	17 weeks	BMI 20.4, +35lbs, within	"it feels so good to finally feel comfortable in my surroundings lol that baby bump got me feeling fat"

Major Theme: Body Image				
Number of participants posting about theme: 22 women				
Total number of posts about theme: 75 posts				
Sub-theme	Demographics	Gestational age at time of post	Weight data	Facebook Post
	24 yo, black / non-Hispanic, high school graduate	17 weeks	BMI 22.6, +30.5lbs, within	“my stomach is starting to shape and get bigger lol and a lil heavy”
Legend: * = demographics not completed by participant + / - = positive / negative weight gain during pregnancy				
Order of listed data: Demographics header = Age (years), race / ethnicity, highest education level obtained Weight data header = Pre-pregnancy body mass index (BMI), weight gain during pregnancy, Institute of Medicine (IOM) classification of weight gain at the end of pregnancyR				
Common social media abbreviations: lol = “laughing out loud” idec = “I don’t even care” idc = “I don’t care” idk = “I don’t know” asf = “as fuck”				

Table 5:

Representative posts on influencers of health behaviors and related subthemes

Major Theme: Influencers				
Number of participants posting about theme: 16 women				
Total number of posts about theme: 43 posts				
Sub-theme	Demographics	Gestational age at time of post	Weight data	Facebook post
<i>Partner influencing food choices (n=11)</i>	18 yo, white / non-Hispanic, some college	8 weeks	BMI 31.2, -8lbs, under	"i swear i have the best boyfriend ever! took me to dinner at antonio's and then the movies. i love you baby"
	24 yo, black / non-Hispanic, some college	14 weeks	BMI 29.2, +29lbs, over	"had a great date with my baby today. went to red robin and got a free birthday burger, stopped by dennys and got a free birthday breakfast, and went to the park to walk it all off. now i'm sick and tired. but it was worth it.! thank you babe. i love you"
	21 yo, black / non-Hispanic, high school graduate	28 weeks	BMI 40.0, +45lbs, over	"Imbo [name] said im blessed because i told her when [name] take me out to eat im allowed to get a drink and dessert Imbo"
<i>Family and friends influencing food choices (n=25)</i>	17 yo*	9 weeks	BMI 25.5, +17lbs, within	"cried because [name] wanted to take me to taco bell instead of burger king we compromised with wendy's"
	23 yo, black / non-Hispanic, vocational school	9 weeks	BMI 22.3, +37lbs, over	"pickles & ranch omg so good !!! & [name] got me eating hot fries . this poor baby"
		19 weeks		"real friends satisfy your cravings when you're pregnant s/o 2 [name]!! hot wings & fries in the making"
	16 yo*	18 weeks	BMI 26.1, +14lbs, under	"i crave slushies all day everyday , and i get what i want because my momma loves me"
	24 yo, black / non-Hispanic, high school graduate	25 weeks	BMI 28.9, +29lbs, over	"i love going to my grandma house she made mac and cheese and gave me most of it"
	19 yo, white / non-Hispanic, some high school	26 weeks	BMI 20.4, +35lbs, within	"i just want to thank my grandma because the other day i really had no energy or patience to go into the store i was sick as a dog so she went out and got me a bunch of fruit,soup,gatorade and crackers...oh and i forgot the vernors. the whole care package and i appreciate it really a lot and i love you very much ,thank you grandma!!!"
<i>Friends influencing body image (n=3)</i>	22 yo, white / non-Hispanic, some high school	24 weeks	BMI 19.3, +35lbs, within	"last time i wore this dress was in june.. [name] you were right this dress that you let me borrow definitely makes my belly pop."
<i>Friends influencing exercise habits (n=3)</i>	21 yo, black / non-Hispanic, high school graduate	4 weeks	BMI 40.0, +45lbs, over	"i need a consistent , committed workout partner with motivation , dreams and goals ugh wtf !! lol"
	19 yo, mixed race / non-Hispanic, high school graduate	6 weeks	BMI 37.6, +44lbs, over	"that after gym life with [name]"
<i>Other influencing (n=4)</i>	18 yo, white / non-Hispanic, some high school	29 weeks	BMI 18.6, +27lbs, within	"the hardest thing in the world is to stay positive and healthy when the one you love is damn near gone. & everything else comes before you."
Legend: * = demographics not completed by participant + / - = positive / negative weight gain during pregnancy				

Major Theme: Influencers				
Number of participants posting about theme: 16 women				
Total number of posts about theme: 43 posts				
Sub-theme	Demographics	Gestational age at time of post	Weight data	Facebook post
<p>Order of listed data:</p> <p><i>Demographics header = Age (years), race / ethnicity, highest education level obtained</i></p> <p><i>Weight data header = Pre-pregnancy body mass index (BMI), weight gain during pregnancy, Institute of Medicine (IOM) classification of weight gain at the end of pregnancy</i></p>				
<p>Common social media abbreviations:</p> <p>lol = “laughing out loud” lmbo = “laughing my butt off” wtf = “what the fuck” s/o = “shout out”</p>				

Table 6:

Representative posts on exercise

Major Theme: Exercise			
Total number of participants posting about theme: 12 women			
Total number of posts about theme: 13 posts			
Demographics	Gestational age at time of post	Weight data	Facebook Post
21 yo, black / non-Hispanic, high school graduate	4 weeks	BMI 39.0, +45lbs, over	"i need a consistent , committed workout partner with motivation , dreams and goals ugh wtf !! lol"
24 yo, black / non-Hispanic, some college	14 weeks	BMI 29.2, +29lbs, over	"had a great date with my baby today. went to red robin and got a free birthday burger, stopped by denny's and got a free birthday breakfast, and went to the park to walk it all off. now i'm sick and tired. but it was worth it.! thank you babe. i love you"
23 yo, black / non-Hispanic, vocational training	15 weeks	BMI 29.8, +42lbs, over	"working out while pregnant keeps my energy going"
20 yo, black / non-Hispanic, some high school	17 weeks	BMI 17.3, +22lbs, under	"i wanna take my son in a pool to bad i can't swim lmfao"
19 yo, white / non-Hispanic, some high school	17 weeks	BMI 20.4, +35lbs, within	"who wants to go on a drive or walk in the park,,not ready for bed yet"
24 yo, black / non-Hispanic, high school graduate	26 weeks	BMI 22.6, +30.5lbs, within	"i think i wanna go walk around the mall who wants to go with me?"
21 yo, white / non-Hispanic, high school graduate	32 weeks	BMI 43.5, +22lbs, over	"after my son born imma work out my goal is 150–175 pounds"
24 yo, white / non-Hispanic, high school graduate	32 weeks	BMI 19.7, +22lbs, under	"does anyone wann do something today? hangout? go walk around the mall? anything?"
Legend: * = demographics not completed by participant + / – = positive / negative weight gain during pregnancy			
Order of listed data: Demographics header = Age (years), race / ethnicity, highest education level obtained Weight data header = Pre-pregnancy body mass index (BMI), weight gain during pregnancy, Institute of Medicine (IOM) classification of weight gain at the end of pregnancyR			
Common social media abbreviations: lol = "laughing out loud" wtf = "what the fuck" lmfao = "laughing my fucking ass off"			