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Running Header: UNDERSTANDING ADOLESCENT PREGNANCY

**Understanding the Experience of Weight Gain and
Body Image during Adolescent Pregnancy**

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May 14, 2012

University of New Hampshire

Abstract

Title: Understanding the Experience of Weight Gain and Body Image in Adolescent Pregnancy.

Background: The Institute of Medicine publishes guidelines for the appropriate amount of weight women from each BMI category should gain. According to the literature, adolescents are at risk of gaining outside these recommendations. While body image plays an inevitable role in pregnancy and weight gain, this study explores whether the right support can surmount the challenges adolescents face in attempting to gain weight within the IOM recommendations.

Aim: The purpose of this study was to gain insight about the experience of weight gain and body image during adolescent pregnancy.

Methodology: For this qualitative descriptive study, a sample of eight women who gave birth as adolescents filled out questionnaires and were then interviewed over the telephone.

Data Analysis: The data was then analyzed using content analysis to identify the emerging themes.

Findings: In the sample, three women gained within the recommendations and the other eight gained either excessively or too little. The three themes that emerged from the data were continuity of care, adolescent investment in a healthy pregnancy, and the impact of pregnancy symptoms.

Implications: Based on the findings, it appears as though adolescents desire personalized care to help them achieve a healthy pregnancy. Adolescents also may benefit from additional nutritional counseling from their healthcare provider.

Introduction

The purpose of this literature review was to examine the research previously conducted into the experience of adolescent pregnancy. The researchers were specifically interested in learning about the influence body image has on adolescent weight gain during pregnancy, if any. The search was widened to include body image in non-pregnant adolescents, as well as literature about body image during pregnancy in adult women, as there is very limited literature available specifically on the influence of body image on adolescent weight gain during pregnancy. It was necessary to review the literature surrounding the influence of body image in non-pregnant adolescents because this serves as the control for the adolescent experience in western society. Additionally, research looking at pregnancy in adult women was reviewed to explore whether or not there is a difference in the way adolescents and adults experience their pregnancies. Finally literature about healthy versus non-healthy weight gain, along with the outcomes for both mothers and infants was collected to identify why the amount of weight gained during pregnancy is important.

Literature Retrieval

The University of New Hampshire's Dimond Library databases were utilized to retrieve the literature. CINAHL Plus with full text, Academic Search Premiere, Cochrane Database of Systematic Reviews, Healthsource: Nursing/Academic edition, MEDLINE, and PubMed were the databases selected to be searched. To narrow the results to articles useful for this study, limitations were set. After the limitations were set, only research that had full text available, had been peer-reviewed with references available, and consisted of the English language were retrieved.

To find literature about body image in non-pregnant adolescents, the key terms "body

image,” “self-esteem,” “body dissatisfaction,” and “adolescent” were used. A number of articles were retrieved and looked at. However, two articles, “Body Image and Self-Esteem Among Adolescent Girls: Testing the Influence of Sociocultural Factors,” and “Body Dissatisfaction, Dietary Restraint, Depression, and Weight Status in Adolescents” were deemed most relevant to the particular topic being researched and therefore were selected for use. These articles were also selected for their recent publication dates of 2005 and 2010 respectively.

In order to find research about body image during pregnancy in adult women, the key terms “body image,” “pregnancy,” and “dissatisfaction” were used. From the results, the articles “How well do women adapt to changes in their body size and shape across the course of pregnancy?”, “Body image change in pregnancy: a comparison of normal weight and overweight primigravidas,” “Effect of Body Image on Pregnancy Weight Gain,” and “A prospective study of factors that lead to body image dissatisfaction during pregnancy,” were selected for their relevance. While most of these articles were published within the past few years, the article “Body image change in pregnancy: a comparison of normal weight and overweight primigravidas” was published in 1997. However, this was still included in the research because it included aspects that the other research failed to address, such as how weight before pregnancy affects body image during pregnancy. Although the research was done in 1997, the researchers felt that the results of the study are still relevant and applicable today.

To find research about pregnancy in adolescents specifically, the key terms “maternal weight gain,” “adolescent,” “pregnancy,” “body image,” and “IOM recommendation” were used. From the results retrieved, the articles “Are the Institute of Medicine recommendations for gestational weight gain appropriate for adolescents?”, “Excessive maternal weight gain patterns in adolescents,” “Weight gain in adolescents during pregnancy: rate related to birth-weight

outcome,” and “Weight gain attitudes among pregnant adolescents” were selected. The researchers found it very difficult to gather literature about body image and weight gain in pregnant adolescents, as the topic does not seem to have been studied excessively. Therefore, it was necessary to include articles that were not published within the last ten years. The best research found about the topic was conducted in the early 1990’s, so the articles “Weight gain in adolescents during pregnancy: rate related to birth-weight outcome,” and “Weight gain attitudes among pregnant adolescents” were included although they were published in 1992 and 1993.

To understand more clearly about the experience of adolescent pregnancy and to gain a closer look at the amount of information adolescents are receiving from health care personnel, the key terms “becoming a teenage mother”, “informed”, and “experience” were searched. Many research studies were reviewed, but the studies titled “Becoming a mother: teenage mothers’ experiences of first pregnancy”, “Becoming and being a teenage mother: How teenage girls in south western Sweden view their situation”, and “Psychosocial influences on weight gain attitudes and behaviors during pregnancy” were selected based on their relevance about the experience of adolescent pregnancy and their recent publication dates. Although two of the articles include reports from adolescents about the health care information given, the article titled “Are expectant teenage mothers adequately informed?” was also selected to further examine this topic.

It may also be noted that a search was conducted outside of the UNH database system to find research about nutrition during adolescent pregnancy. The Journal of Nutrition was selected, and a search for articles was completed on the journal’s website. The terms “adolescent pregnancy” and “weight gain” were used with a publication date after the year 2000. The research article titled, “Adolescents with Adequate Birth Weight Newborns Diminish Energy

Expenditure and Cease Growth” was selected based on the relevance of information and the recent publication date of 2006. Aside from research articles, the Institute of Medicine (IOM) website was used to determine the recommended weight gain for women of each BMI, as well as the textbook entitled *Maternal Child Nursing Care*.

Review of the Literature

Adolescent Body Image

Body image is central to adolescent girls’ self-definition (Clay, Vignoles, & Dittmar, 2005). According to Merriam-Webster Dictionary, *body image* is defined as “a subjective picture of one's own physical appearance established both by self-observation and by noting the reactions of others” (*Merriam-Webster Dictionary*, 2011). In this way, body image may be positive or negative depending on how closely one’s actual body size resembles the individuals’ ideal body size. In western societies, adolescents have been exposed to the belief that appearance and self-worth are so inextricably linked that appearance is the strongest single indicator of self-esteem (Clay et al., 2005). This link is problematic because “body image develops in the context of unrealistic media images of female beauty” (Clay et al., 2005, p. 451). Media images create an ideal body size that is unrealistic and unattainable for most adolescents. With media portraying the idea that thinness is directly related to beauty, adolescents are more likely to have a poor body image if they are not what they consider the ideal body size (Duncombe, Wertheim, Skouteris, Paxton, & Kelly, 2008). A study done in 2005 of 136 adolescent females found that those who were exposed to images of thin models experienced lower body satisfaction and consequently lower self-esteem (Clay et al., 2005). Adolescents are at particular risk of having low self-esteem because as they experience the bodily changes of puberty, they move further away from what society considers the standard of female beauty

(Clay et al., 2005).

Adolescent Pregnancy

One factor contributing to the failure of achieving what is thought to be an ideal body size may be teenage pregnancy. During pregnancy, women experience rapid changes in their body size and shape over a short period of time. The Institute of Medicine (IOM), who reexamined their pregnancy weight gain guidelines in 2009, writes the official guidelines for pregnancy weight gain in the United States. The IOM report determines women who are underweight prior to pregnancy should gain 28-40 pounds, women who are normal weight pre-pregnancy should gain 25-35 pounds, women who are overweight should gain 15-25 pounds, and women who are obese should gain 11-20 pounds (Institute of Medicine, 2009). The IOM report states that “teenagers who are pregnant should use the adult BMI categories to determine their weight gain range until more research is done to determine whether special categories are needed for them” (Institute of Medicine, 2009, p. 2). Based on this, adolescents are encouraged to gain anywhere from 11 to 40 pounds, which could bring them further from their ideal body size.

Negative body image related to adolescent pregnancy. The typical pregnant woman gains approximately 28 pounds during a 40 week pregnancy (Duncome et al., 2008). This significant weight gain can result in a change in body satisfaction for women of all ages, adolescents in particular. Adolescents have less time to adjust to pubertal body changes before having to adjust to the changes occurring to their body from pregnancy (Maputle, 2006), which may interfere with healthy self-image. According to Maputle, many adolescents place great emphasis on physical appearance and trim figure when pregnant (2006). This can cause adolescents to experience difficulty in accepting their image and to feel clumsy, unattractive, ugly, and fat (Maputle, 2006). This difficulty adjusting to pregnancy could have negative

effects. Pregnancy requires additional energy “to support metabolic demands and fetal growth to deliver infants with adequate weight at term and to maintain maternal weight” (Casanueva, Rosello- Soberon, De-Regil, Arguelles, & Cespedes, 2006, p. 2498). Early pregnancy is a particularly important time in the development of the fetus, and proper weight gain is necessary. However, a study of 158 pregnant women completed by Duncome et al., found that during this time many “compare their body changes to those of a woman who has gained weight, instead of a woman who is pregnant” (2008, p. 511).

Inadequate pregnancy weight gain. A negative attitude toward weight gain can adversely affect maternal weight gain, which is related to infant birth-weight (Maputle, 2006). This is important for adolescents in particular because “the high percentage of low-birth-weight infants delivered by adolescent mothers is a continuing problem” (Rees, Engelbert-Fenton, Gong, & Bach, 1992, p. 868). Pregnant adolescents have twice the risk of delivering a pre-term low-birth-weight infant or of having obstetric complications (Casanueva et al., 2006). In fact, in a study of 495 adolescents from the United States, 31% delivered either preterm or low-birth-weight infants (Rees et al., 1992). Also, adolescents generally tend to give birth to infants 7-14 ounces smaller than those born to adult women in all BMI categories (Groth, 2007). This is meaningful because a significantly greater percentage of low-birth-weight infants need intensive care at birth compared to babies of a healthy weight (Rees et al., 1992). Furthermore, neonatal and infant death rates for moderately low-birth-weight infants are five times higher than that of infants born weighing more than five pounds eight ounces. Death rates are more than 100 times higher for very-low-birth-weight infants (Perry, Hockenberry, Lowdermilk, & Wilson, 2010), indicating the importance of gaining adequate weight during pregnancy.

Positive body image related to adolescent pregnancy. Contrasting with the idea that pregnancy may increase body image concerns in adolescents, studies on the topic have suggested that body image may improve with pregnancy. A study done by Fox et al. in 1997 with 76 participants concluded that women with a larger body size before pregnancy were more likely to experience a positive body image change. A reason for this was many women felt that being pregnant allowed them to be overweight instead of trying to attain society's ideal female form (Fox et al., 1997). Another study consisting of 99 13-18 year olds done by Stevens-Simon et al., in 1993 found that pregnant teenagers have a more positive body image than their non-pregnant peers. This could be because "normal societal pressure to conform to body shape ideals may be reduced during pregnancy, since women see changes in the body shape and weight as temporary and specific to child bearing" (Duncombe et al., 2008, p. 504). The study of 158 women done by Duncome et al. supported the idea that many women view pregnancy as a special time when they are allowed to be large because it means they are properly caring for themselves and their fetus (2008). While this opposing view shows that many women can adapt well to pregnancy, it also means these women are at risk of gaining too much weight during their pregnancy.

Excessive pregnancy weight gain. According to the IOM, excessive weight gain is defined as more than 40 pounds because this is the highest recommended weight gain for even the most underweight women (Howie, Parker, & Schoendorf, 2003). In a study done in 2003 that analyzed data from the Center for Disease Control (CDC) natality file and consisted of 2,796,805 participants, over 27% of adolescent mothers gained excessive weight during their pregnancy (Howie et al., 2003). This study found that adolescents are more likely than older women to gain too much weight regardless of demographics, race, or number of pregnancies (Howie et al., 2003). The risk of high maternal weight gain was shown to decrease as maternal age increased.

While some increased weight gain in adolescents is associated with increased birth weight of infants and more favorable outcomes, evidence also shows that adolescents who gain excessively are at greater risk of retaining excess weight postpartum (Howie et al., 2003). Another study done by Mehta, Siega-Riz, and Herring in 2011 with 1,192 American women found that in the past 25 years there has been a 16% increase in the obesity prevalence among women of childbearing age. One of the reasons for this increase is the greater weight gain of women during pregnancy. Aside from retaining weight after pregnancy, other possible outcomes of excessive maternal weight gain are increased risk of cesarean section, macrosomia (Mehta et al., 2011), maternal anemia, and preterm labor (Howie et al., 2003). Macrosomic babies “have a higher incidence of birth injuries, asphyxia, and congenital anomalies such as heart defects” (Perry et al., 2010, p. 735). The study done by Mehta et al., found women who are average or underweight before pregnancy are at greater risk of gaining excessive weight during pregnancy, while women who are overweight or obese have a decreased risk of gaining too much weight while pregnant (2011).

Helping adolescents gain within the IOM recommendations. This literature review suggests that it is becoming increasingly important to understand ways to help adolescents gain weight within the IOM recommended range during their pregnancy. A possible contributing factor to adolescents gaining outside the recommendations is inadequate prenatal care and nutritional advice during pregnancy (Howie et al., 2003). One research study conducted in the UK to determine whether or not teenage mothers were adequately informed had alarming results. MacLeod and Weaver published in 2002 that out of 111 new teenage mothers, “42% said sometimes they would have liked to have been told more” and less than half of the sample were satisfied with the amount of information received (p. 145). The data further suggests that the

majority of teenagers received an inadequate amount of information which they failed to understand (MacLeod & Weaver, 2002). Based on these findings, adolescents may require special attention from dietitians during their pregnancies (Howie et al., 2003), and health care providers must ensure the information provided is at an appropriate level for the adolescent. “Success in teenage motherhood, in terms of the healthy development of both mother and child, depends on the right kind of support being available at the right time” (Wahn, Nissen, & Ahlberg, 2005, p. 602). Having their personal experiences understood and being treated as individuals by health care professionals during pregnancy care are aspects women value greatly (Fox et al., 1997). Therefore, many women could find it helpful to talk about their pregnancy experiences with health care workers in a patient-centered context (Fox et al., 1997), indicating a need for health care professionals to be supportive and receptive.

Support during pregnancy. Aside from getting proper support and nutritional advice from health care providers, another important factor that has been shown to help teenagers with body image and weight gain during pregnancy is their support system at home. Stevens-Simon et al., found in 2003 in his study of 99 13-18 year olds that attitudes toward weight gain are also directly related to their family support. Furthermore, family support may have the potential to mitigate against adverse effects that poor body image has on pregnancy weight gain. Interventions designed to augment family and social support may improve attitudes toward pregnancy weight gain (Stevens-Simon et al., 1993). Because not all adolescents have adequate family support during their pregnancy, they may be at a greater risk for gaining inappropriately. Overall, the literature reviewed shows adolescents are gaining either too much or too little weight during their pregnancy. Many of those gaining too little report having decreased body image satisfaction and therefore do not allow themselves to gain a healthy amount of weight.

Opposing this view, many of those gaining excessive weight during pregnancy attributed it to allowing themselves to gain because pregnancy is a time when they do not need to conform to society's ideal of a thin figure. Based on this literature review, it has become apparent that a large percentage of adolescents are gaining outside the Institute of Medicine's recommended range for their body size. The effects of gaining both too little and too much can be detrimental to maternal health and fetal health (Perry et al., 2010).

Aim of the Study

The aim of this study is to understand the experience of weight gain and body image during adolescent pregnancy. The researchers hope to gain insight about the key factors affecting adolescents throughout their pregnancies. While body image plays an inevitable role in pregnancy and weight gain, this study explores whether the right support can surmount the challenges adolescents face in attempting to gain weight within the IOM recommendations. This study will provide insight into teenagers' feelings and perceptions about body image and weight gain that will help to address the lack of data currently available on this subject and therefore provide more evidence to support practice in this area.

Methodology

In order to conduct this study, a qualitative descriptive approach was used. This approach was explored by Margarete Sandelowski, and is a method of analyzing data in a qualitative study. According to Sandelowski, a qualitative descriptive method is used "when straight descriptions of phenomena are desired" (Sandelowski, 2000, p.334). In this way, researchers aim to create an accurate account of events that most people observing the same event would agree is accurate. Researchers also try to provide an accurate account of the meanings participants

attribute to those events, and that those participants would agree is accurate (Sandelowski, 2000). The overall approach therefore is to report the findings exactly as they are in everyday language.

Methods

Sample

The aim of this study was to gain insight about the experience of adolescent pregnancy. Therefore, women who had delivered a baby as an adolescent were sought to participate. Women under the age of 18 must have parental consent to participate in research studies so inclusion criteria limited the sample to women over the age of 18. The limitations were women who delivered their baby at 20 years of age or younger, but presently had to be 18 years of age or older to participate.

To gain access to the sample group, various local New Hampshire childcare facilities were contacted by telephone and through e-mail to determine women's interest in participating. Many of the facilities were reluctant to participate because of the strict age criteria, as they felt they did not have enough clients in that age category. One local facility, Strafford County Head Start, felt they had many participants who would qualify for our study and agreed to participate. The researchers provided the facility with an informational poster (see Appendix A) and met with the educational manager to discuss access to the sample and data collection. It was determined that the visiting nurses would provide clients who met the age requirements with the poster and if the client agreed to participate, a letter of informed consent (see Appendix B) and a self-administered questionnaire (see Appendix C) would also be provided. At this time, it was agreed that a one month period of time would be given to collect the surveys from willing participants. In addition to this data, a snowball technique was utilized by the researchers to collect data from two other participants. At the close of the one month period of time, a total of

11 participants had signed the informed consent letter, filled out the questionnaire, and had agreed to participate further with the follow-up telephone interview.

Data Collection

Ethical considerations. To begin the research process for this qualitative descriptive study, a proposal was submitted and approved through the University of New Hampshire's Institutional Review Board. To maintain confidentiality for participants, all data was collected and stored on a password-protected computer and questionnaires were kept in a confidential folder available only to the researchers and their mentors. Upon completion of analysis, the data and identifying factors were destroyed. Also included in this proposal were the survey tools created to gather data necessary for answering the research topic.

Data were collected in a number of ways. The first tool is a self-administered questionnaire (see Appendix C) which asks participants to state their age at delivery, current age, height, pre-pregnancy weight, weight at last prenatal visit, weight of baby at birth, and current weight. It also contains the Contour Drawing Rating Scale (CDRS), developed by psychologists Thompson and Grey in 1995, which asks participants to circle the drawing that best represents their ideal body size before pregnancy and the drawing that best represents their actual size before pregnancy. This tool has been tested for validity and has been established as a reliable and valid measure of body size perception (Thompson & Gray, 1995). The questionnaire also asks participants to list their phone number if they agree to complete a brief telephone interview with the researchers. The researchers decided to first collect data to determine whether or not the participants gained within the IOM recommendations for their pre-pregnancy BMI, as well as information on the participants' self-image. This questionnaire also provided a means for determining participants' interest in a follow up telephone interview, and served as a method for

collecting the telephone numbers. The questionnaire therefore was a brief tool that was simple for the Head Start Center to distribute and collect to assist the researchers in accruing potential participants.

The second tool used was a follow-up telephone interview form (see Appendix D) that consists of nine open-ended questions. These questions guided the researchers in the interviewing process, and were constructed around the subject the researchers were interested in understanding. The researchers decided to use open-ended questions to engage in conversation with the participants. Open-ended questions gave the participants the opportunity to share their experiences with the researchers and elaborate on significant memories. As an incentive to volunteer their time, participants who complete both portions of the data collection were entered in a drawing for three \$20.00 Visa gift cards.

Interviews

Telephone interviews were conducted over the next three weeks, as this was the time the researchers had available for the interviewing process. Although many interviews took place within the first week, two additional weeks were necessary to reach all participants. As one researcher conducted the interview, the second researcher transcribed the responses on a password protected computer. A total of eight women participated in the interview, with three women unable to be reached. One participant's phone had been disconnected, another participant was left several voicemails with no response, and the third participant declined further participation.

As novice researchers, this was the first time either researcher had undertaken the interview process, and we experienced a steep learning curve in the first two interviews. At the completion of two interviews, the researchers commented in a field note, "*The questions I asked*

during the interview mostly yielded 'yes' or 'no' answers. I don't think this template will work so we should discuss this with our mentor during our next meeting." When the researchers met with their mentor, it was decided to alter the interview questions slightly to gain a greater insight into the research topic. The alterations were slight, and consisted mainly of turning closed questions into open-ended questions. Although this change helped the researchers gain more data and thus a greater insight, challenges were evident.

The researchers also experienced challenges related to interviewing young women about a sensitive topic such as adolescent pregnancy and body image. It was difficult to gain the greatest insight possible on this sensitive topic without leading participants. Often times, participants would state they didn't have much input for certain topics, or they would just state they didn't know. In a field note, one researcher comments, *"I felt frustrated after completing these interviews today. I felt like I was not getting full, rich answers, but I did not want to lead the participants or put words in their mouths. I feel that if we were able to do the interviews in person the women would have had an easier time opening up to us"*.

A third challenge the researchers were faced with was a small sample size. Although Head Start had provided nine women who fit the criteria and had agreed to participate and the researchers selected two participants through a snowball technique, only eight were able to be contacted. At the beginning of the research process, a goal of ten to fifteen participants was set. While eight participants is close to the original goal, having a larger sample size would have benefited the study by providing insight into a greater number of young women's varied experiences. However, based on time limitations for the completion of this study, and the realities of undertaking undergraduate qualitative work, a sample of eight participants was deemed acceptable by the researchers and their mentors.

The fourth challenge encountered in this retrospective research study was a time gap between the time participants were pregnant and the time they spoke with the researchers about their experience. For some participants only a matter of months had passed, but for others it had been years. The greatest time gap from time of delivery to time of participation was 13 years for a participant who delivered at age 16 and spoke with researchers at age 29. While the researchers preferred to have participants who had delivered within the past two years, the literature suggests that recall may not be a significant issue. In an article published in 2001 that studied 448 women's validity of recall of the age of their menarche and their body size at that time, the researchers found that women were able to accurately recall this information 30 years later (Must et al., 2001). A second research article consisted of 57 male couples who initially volunteered for the study of gay relationships in couples currently living together. Four years after this study occurred, researchers contacted the couples for a follow-up study. For the memory questions, the researchers were able to obtain data from 77 participants. The researchers found that participants were able to accurately recall emotional behaviors for themselves and their partners from four years prior (Safer, Breslin, Boesch, & Cerqueira, 2007).

Data Analysis

Data were analyzed using content analysis. Content analysis is a systematic and objective means of analyzing data. Content analysis enables the researcher to identify themes that emerge from the data and combine these themes into a few content-related categories. The key feature of all of content analysis is "that many words of the text are classified into much smaller categories" (Elo & Kyngas, 2007, p. 109). The purpose is to provide knowledge and insight by creating categories that describe the phenomena being studied (Elo & Kyngas, 2007). The process of content analysis is broken up into three phases: preparation, organization, and

reporting. For the preparation phase, a unit of analysis is chosen. Depending on the study, the unit can be a word, sentence, or theme (Polit & Beck, 2004). For this research study, the unit chosen was a theme. The next phase is for the researcher to make sense of the data collected and to obtain a sense of the whole picture. To do this, the researcher has to immerse him/herself in the data, so it is read through many times (Polit & Beck, 2004). The researcher then organizes the data. First, data is coded by noting important content while reading it through, and then categories are created. When forming categories, the “researcher comes to a decision, through interpretation as to which things to put in the same category” (Elo & Kyngas, 2007, p. 111). Finally, the researcher reports the findings. To make sure the findings are accurate and reliable, it is necessary to demonstrate a link between the results and the data (Polit & Beck, 2004).

The first step taken to begin content analysis on this research was to put the data collected on the questionnaire into a chart (see Chart 1). By creating this chart, the researchers were able to determine how many participants gained weight within or outside of the IOM recommendations. Participants recorded height and weight was used to calculate their BMI in order to determine the amount of weight they should have gained according to the IOM recommendations. Chart 2 shows the current IOM recommended weight gain for each BMI class.

Chart 1

Number	Age at Delivery	Pre-pregnancy BMI	Total Pregnancy Gain	Baby's Weight	Current Age	Current BMI	Ideal Body Size Pre-pregnancy
1	20	24.6 (normal)	30 lbs (within range)	9 lbs 2 oz	23	29.9 (overweight)	2 sizes smaller
2	19	20.2 (normal)	70 lbs (too much)	5 lbs 11 oz	24	21.6 (normal)	At ideal size
3	20	27.4 (overweight)	-30 lbs (too little)	6 lb 12 oz	21	21.8 (normal)	2 sizes smaller
4	16	16.1 (underweight)	38 lbs (within range)	6 lb 2 oz	29	28.8 (overweight)	At ideal size
5	19	20.1 (normal)	78 lbs (too much)	8 lb 0 oz	22	20.2 (normal)	2 sizes larger
6	18	20.4 (normal)	0 lbs (too little)	8 lb 15 oz	25	20.4 (normal)	At ideal size
7	20	19.8 (normal)	42 lbs (too much)	7 lb 14 oz	20	18.2 (underweight)	1 size smaller
8	20	28.1 (overweight)	23 lbs (within range)	7 lbs 8 oz	22	35.7 (obese)	4 sizes smaller

Chart 2

Prepregnancy BMI	BMI	Total weight gain range (lbs)	Rate of weight gain 2nd and 3rd trimester (Mean range in lbs/week)
Underweight	Less than 18.5	28-40 lbs	1 (1-1.3)
Normal	18.5-24.9	25-35 lbs	1 (0.8-1)
Overweight	25.0-29.9	15-25 lbs	0.6 (0.5-0.7)
Obese	30.0 and above	11-20 lbs	0.5 (0.4-0.6)

(Institute of Medicine, 2009)

Next, the interview transcripts were read by the researchers. After reading the interviews multiple times, researchers created a list of themes as they emerged from the individual

interviews. Each researcher read the interviews separately and wrote a list of themes on her own. They then reviewed their findings with each other and created an agreed upon list of common themes. The research was reviewed further to validate that the themes chosen accurately represented the data and no themes had been forgotten. Data was color-coded so words and sentences belonging in each theme were a different color. This allowed to researchers to easily refer back to the important parts of each transcript. Key quotes that best represented the experiences of the women interviewed were also highlighted for inclusion.

Trustworthiness of the Data

To ensure trustworthiness of the data and results, an audit trail was completed. An audit trail is a record of all research components from the very beginning of the project to the final results. This record includes the researcher's attempts at collecting data as well as the raw data successfully collected. It also includes field notes taken by the researchers throughout the process, and all documents used. In addition to the audit trail, the researchers initially read and coded the transcripts for themes separately. The researchers then compared results to ensure validity. To further ensure that the selected themes most accurately represented the findings of the data, transcripts were sent to the researchers' mentor for review. She also created a list of themes, and met with the researchers to discuss her findings and interpretation of the data. After all three parties had reviewed the data, three common themes were identified and agreed upon that best represented the experience of the participants. Finally, trustworthiness was also created by agreeing to present the findings at the Head Start center where the majority of data collection occurred in order to ensure that the researchers accurately captured the participant's experiences.

Findings and Discussion

Questionnaire Findings

In reviewing the data collected on the initial questionnaires, the majority of newborns were born within the healthy weight range. A low birth weight infant is a baby born weighing less than five pounds eight ounces and a macrosomic infant is a baby born weighing more than eight pounds thirteen ounces (*Birth - weight*, 2012). The smallest newborn in the sample weighed five pounds eleven ounces and the largest newborn weighed nine pounds two ounces. This means one baby was born macrosomic and all other babies were born within the normal range. This was an interesting finding as the majority of literature reviewed discussed adolescents delivering low birth weight or macrosomic infants. For total pregnancy weight gain, three of the eight participants gained within the recommended range for their BMI. Three participants gained more than recommended, one participant lost weight during pregnancy, and one participant did not experience any weight changes. When answering the Contour Drawing Rating Scale, four of the five women who were of a normal weight before pregnancy stated they were either at their ideal size or wished they were one to two sizes smaller. One woman who was a normal weight wished she was two sizes larger and ended up gaining the most weight of any woman during her pregnancy. She gained a total of 78 pounds during pregnancy, and when interviewed about her weight gain she stated, *“I just happened to gain a lot of weight and was hungry all the time”*. She also mentioned that a lot of the weight gain was water weight, and acknowledged the fact that she knew she was gaining twice the amount that she should be.

Although the literature reviewed suggests that adolescents who gain excessive weight during pregnancy are at greater risk of retaining weight postpartum and having a macrosomic baby, this

participant was able to return to a normal BMI after delivering a baby within the normal weight range.

Two women surveyed were overweight prior to becoming pregnant. Of these women, one of them demonstrated on the Contour Drawing Rating Scale that her ideal size was two sizes smaller than her actual size. Because of this desire, the participant was trying to lose weight and was not aware she was pregnant until six months into the pregnancy. However, even when she became knowledgeable about her pregnancy, she did not gain weight during the last trimester, and overall lost thirty pounds during her pregnancy. While it is unhealthy to lose weight during pregnancy, the baby was born a healthy size. The other participant who was overweight prior to pregnancy indicated an ideal body size four sizes smaller but was still able to gain an appropriate amount for her baby. This individual gained within the IOM for her BMI category and had a normal weight baby. The final participant was underweight prior to pregnancy and indicated that she was at her ideal body size. This participant indicated in her interview that she was anorexic at the time she became pregnant. However, this participant was able to overcome her anorexia during her pregnancy and gained within the recommended range. Her baby was premature, but was still a healthy birth weight at 6 pounds two ounces. Overall, the results from the participant's responses to the Contour Drawing Rating Scale showed that three of the eight women were at their ideal size, four desired a smaller size, and one desired a larger size. According to the literature reviewed, adolescent's body image may be positive or negative depending on how closely their actual body size resembles their ideal body size. In this case, before pregnancy, three of the participants displayed positive body image, and five participants had less positive body image or poor body image relating to a desire for a smaller or larger size.

Themes

After analyzing the data using content analysis, three main themes were identified. The three themes were continuity of care, adolescent investment in a healthy pregnancy, and the impact of pregnancy symptoms. These three themes will be discussed in turn.

Continuity of care. Out of the eight participants interviewed, six women discussed the experience of healthcare during pregnancy. The participants experienced a variety of different healthcare providers including midwives, doctors, and nutritionists who provided varying types of support. In reviewing the responses received from participants, many of the topics coincided with findings from previous research studies discussed in the literature review. Most notably, in the study done by Howie et al. in 2003, researchers found that adolescents may require special attention from dietitians during their pregnancies in order to gain appropriately. This was also evident in in the sample of women interviewed for the present research. Two of the eight women saw a nutritionist during their pregnancies, and both women reported this as being a positive and helpful experience.

“I actually met with a nutritionist the whole time. They made sure I had healthy weight gain. Otherwise I would have just eaten burgers and fries, obviously, because that is what I craved...when I first got pregnant, the midwife suggested I meet with a nutritionist. I actually didn't see a doctor until I was 36 weeks when I moved to Concord. Up until that point I only saw midwives. I think they were more involved with looking at my weight gain than the doctor was.”

The other participant stated, *“They had me write a menu of what I ate and it made me be like ‘oh that is horrible,’ or ‘I am eating really healthy’”*.

Both of these women also gained within the IOM recommended range for their BMI, while only one participant who did not see a nutritionist gained the recommended amount. Based on these results, having nutritionist involvement during adolescent pregnancy seems to be a positive factor in helping adolescents gain the appropriate amount of weight.

Another study discussed in the literature review found that women value having their personal experience understood and may find it helpful to talk about their pregnancies in a patient-centered context (Fox et al., 1997). This was supported in the current study by the participant who discussed her experiences with both a doctor and a midwife. She reported that she was into “...*the holistic stuff and doctors don't really support that...I liked the midwife way more, there is more support and more one on one time. With doctors, they have a lot of patients and don't really have time to sit down and chit chat and stuff*”. This participant wanted her care to be individualized and in-line with her personal preferences. She found the midwife to provide her with the patient-centered care she desired. Many women also expressed a desire for improvements in their care. Improvements mentioned included getting information in writing rather than only verbally and having a diet plan with specific good foods to eat. If healthcare providers give patients individualized care, patients will be able to receive the resources that they feel will help them to have a positive and healthy pregnancy experience.

For one participant who was overweight prior to becoming pregnant and who rated her ideal size as four sizes smaller than her actual size, the support she received from healthcare providers was viewed as positive. Although she desired a smaller size, she stated, “*I felt like pregnancy was a time to gain weight so I gained weight easily*”. Even though this participant accepted that she needed to gain weight for her pregnancy, she gained weight appropriately with the help of the healthcare providers. Aside from support from healthcare providers, family

support is also important for some adolescents during pregnancy. In 2003, a study was done by Stevens-Simon et al. that found attitudes toward weight gain are directly related to family support. The study also found that family support may be able to mitigate against the adverse effects poor body image has on pregnancy weight gain. This finding was also supported by the participants in this study. Many participants commented on the support they received from significant others, family, and friends. One participant said, *“I would mostly talk to my boyfriend about it all the time...Talking to him made me feel a lot better about it. We even made a plaster mold of my belly”*. Another participant talked to her girlfriends about her pregnancy weight gain and said *“They kept telling me I was pregnant and it was okay to gain weight”*. One woman had her boyfriend and mother for support and told researchers, *“They were supportive and always said how beautiful I was and how healthy it was for my baby”*. All of these women showed a positive attitude toward pregnancy weight gain and felt that their support systems helped them to feel this way. Because family support seems to play a large role in helping adolescents have positive body image during pregnancy, having a strong support system in place appears to improve healthy weight gain behaviors in adolescents.

One participant who did not receive as much support as she desired lost 30 pounds during her pregnancy and shared, *“they say those things about eating good, but a diet plan with specific foods that would help you and the baby when you’re pregnant would help a lot”*. The participant who gained the most weight, 78 pounds, during her pregnancy also felt she could have received more support from her OB/GYN. Seventy eight pounds is close to twice as much as the IOM’s definition of 40 pounds being excessive pregnancy weight gain (Howie, Parker, & Schoendorf, 2003). She relayed, *“Honestly, they should have more pamphlets or things in writing. I didn’t have anything to take back, it was all verbal.”* A different participant shared her less positive

experience with the researchers as well. This woman, at the time of her adolescent pregnancy, did not have access to healthcare on a regular basis. Although she did attend a few appointments, when asked about any information she received in regards to weight gain, she replied, *“I got a little book about it, like a pamphlet. I didn’t ask, I didn’t talk about it, I didn’t pay attention”*. Although the participant went on to claim that the pamphlet was sufficient information, she gained excessively and outside of the IOM recommendations.

For continuity of care, all participants shared a need for an individualized approach to their healthcare. Adolescents who did receive individualized care from nutritionists gained the appropriate amount of weight and reported this experience as positive. Receiving care from midwives was viewed in a positive way as well, due to the increased one on one time experienced with this type of provider. As stated earlier, the researchers Fox et al. published similar results when they found that women greatly value being treated as individuals by health care professionals during pregnancy care (1997).

Adolescent investment in a healthy pregnancy. Many of the women who described their experience with adolescent pregnancy were invested in achieving a healthy pregnancy. By being invested in achieving this status, most participants shared experiences when pregnancy made them feel positive. Statements such as, *“I thought I was cute”* and *“I was so happy that I was having a baby”* support this positive self-view. Even for the participant who gained the most, the increase in weight did not negatively impact her body image as the woman stated, *“I felt a lot better because I was so happy about having a baby... I wasn’t sad about it... People would say, ‘Your belly is so huge’ but I was so happy that I was having a baby”*. For a different participant who had anorexia, the weight gain during pregnancy was challenging: *“When I was a teenager I was anorexic so I was cautious of what I ate.. I tried to eat healthy but also tried to*

restrict my eating.” Although this woman struggled with the associated weight gain, when asked about the impact she shared, “[It was] *pretty much positive. It made you feel like you were doing the right thing*”. A different participant shared a similar experience: “*I basically accepted I would gain what my body needed to...I walked a lot but I wasn’t really concerned about it because I knew I would lose it after.*” Although the participant shared the experience of becoming more aware of her weight, she was able to accept the associated weight gain and took initiative to begin walking and eating healthier. This initiative supports the fact that adolescents are invested in their health and in having a healthy pregnancy. In an article published in 2003 for *The Journal of Perinatal Education*, the author states that adolescents are willing to change their health behaviors to improve the chances they will have a healthy baby (Montgomery, 2003). Most adolescents who decide to remain pregnant desire to have a healthy baby and know that nutrition is an important piece of this (Montgomery, 2003). However, they do not know exactly what they need nutritionally or how to find out what they need (Montgomery, 2003). This issue also relates back to the theme of continuity of care and the need for healthcare providers to present adolescents with the information and resources they need for a healthy pregnancy.

The experience of eating healthier and increasing the amount of walking were common among participants: “*I tried to eat healthier and walk more...because I had high blood pressure and wanted to have a healthy pregnancy*”. Other common statements include “*I ate pretty healthy*” and “*I took a lot of walks*”. In all, six out of eight women shared that they tried to eat healthier, and three out of eight women shared that they walked more to try to have a healthy pregnancy. For one participant, the experience was slightly different because she did not know she was pregnant until she was six months along. This participant shared, “*I was trying to lose weight anyway so I was trying to get out and do stuff*”. Although pregnancy is not a time to lose

weight, this statement shows that the participant was invested in her health as an adolescent by trying to attain a healthy weight.

To demonstrate further that adolescents are invested in their health through pregnancy, several suggestions were made by participants that demonstrate their desire to learn more about having a healthy pregnancy. Although one participant shared, *“I’m pretty much into just doing all my research on my own”*, other participants wished to know more. One woman suggested that a diet plan would be beneficial because *“I knew not to eat junk but didn’t know about certain foods”*. Suggesting improvements in their healthcare demonstrates that adolescents are invested in their health and want to have healthier pregnancies. This finding that many of the participants wished to receive more information from their healthcare providers is supported by MacLeod and Weaver, who found in a study of 111 new mothers that 42% would have liked to have been told more by their healthcare providers and less than 50% of the sample was satisfied with the amount of information they received (2002). It would appear then that adolescents are invested in learning about being healthy and would like to receive more information from their healthcare providers.

While healthcare professionals need to provide adolescents with the information necessary for a healthy pregnancy, they also need to be aware that many adolescents do their own research on the internet. As one participant stated, *“I’m pretty much into just doing all my research on my own”*. According to an article from the Journal of School Health, adolescents of the 21st century rely on technology much more than adults (Ghaddar, Valerio, Garcia, & Hansen, 2011). Technology is used by adolescents for communication, accessing information, and generally living life (Ghaddar et al., 2011). In this way, adolescents are able to be invested in their health, as many go online to research information on their healthcare needs.

Impact of pregnancy symptoms. Although the majority of participants reported having an overall positive pregnancy experience, five out of eight women discussed cravings and various other pregnancy related symptoms that impacted their pregnancies. For one participant, the experience of craving certain foods was beneficial: *“I think the cravings had a lot to do with it [weight gain]... I craved healthy stuff”*. This participant gained within the recommended range, which supports her thought that the cravings were related to her weight gain. Other participants had different experiences, and one woman shared that if she had not met with a nutritionist, she would have only eaten the foods she craved, such as burgers and fries. This woman was able to overcome her cravings by meeting with the nutritionist, and also gained within the recommended range.

Symptoms of pregnancy, aside from cravings, that participants reported as difficult to deal with included high blood pressure, water weight, nausea, hyperemesis, being physically uncomfortable related to increased size, and relationship strain. One participant suffered from nausea hyperemesis gravidarum to such an extent that she was unable to make any lifestyle changes to have a healthy pregnancy: *“I was really really sick. I literally had to carry cups around with me because I would puke on the floor at Walmart”*. Although no other participants reported experiencing nausea gravidarum, other symptoms were bothersome: *“They said I had a lot of water weight. My feet were swollen and everything, it was awful”*. A third participant described her symptoms impacting her relationship with her boyfriend: *“At the end I felt like a whale and was really uncomfortable... it was hard to feel sexual so it was really hard for [boyfriend] and I didn’t feel like doing anything because I was so uncomfortable”*. Although this participant reported receiving a lot of emotional support from her boyfriend at this time, her experience towards the end of pregnancy was difficult. Despite the desire to have a healthy

pregnancy, the associated symptoms challenged the adolescents and made lifestyle changes more difficult.

Implications for Practice

After undertaking this research project, based on the evident themes, there are many implications for how the results of this study can be used to improve practice. This study had a very small sample size and was the researchers' first attempt at conducting research. However, even with such a small sample size, the data received shows that some of these adolescents were not receiving optimal care during their pregnancy, and that there is room for improvement. Based on these results, a much more large scale and in depth is recommended to further explore each of the themes found in this study.

A major implication for practice emerging from the current data is the need to improve continuity of care for pregnant adolescents. From the interviews, it is clear that most participants did not receive as much information about having a healthy pregnancy and healthy weight gain as they desired. Also, most the participants gained outside the IOM recommendations, displaying that they would benefit from better nutritional counseling, either from an OB/GYN, midwife, or nutritionist. Both participants who saw a nutritionist benefited from the experience and gained the appropriate amount of weight for their body size. Therefore it would appear that having the option of meeting with a nutritionist would benefit pregnant adolescents. Participants also had suggestions for improving practice such as providing more written information to take home and having sample menus provided with specific healthy pregnancy foods. Having pamphlets, menus, and other written information is an inexpensive and easy way to improve the pregnancy experience for adolescents. What became apparent from the findings was adolescents need for an individualized approach to care that was not always available. In adolescent pregnancy,

healthcare providers cannot use the “one size fits all” approach for providing care. Each patient should be treated as an individual and should receive care and information tailored for her particular needs.

Sufficient family support was also shown to be a major factor in women having positive body image during pregnancy and allowing themselves to gain weight for their baby. Because of this, another implication for practice would be to determine the kind of support pregnant adolescents have at home. If certain adolescents do not have strong support systems in place, healthcare professionals may need to provide these young women with additional support and services to help them have a positive, healthy pregnancy experience.

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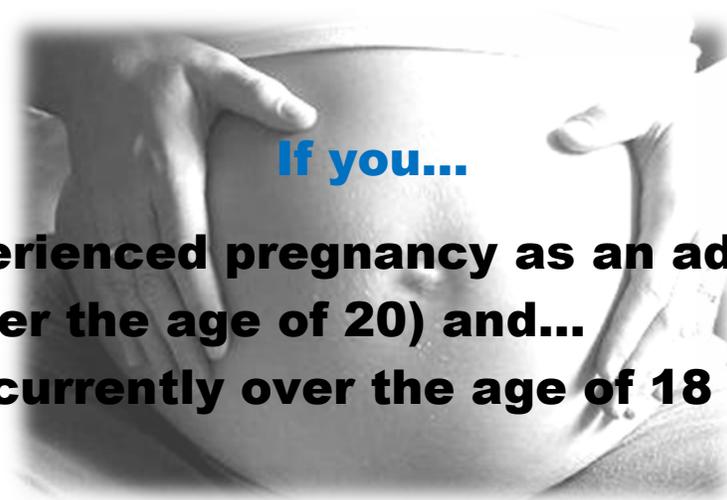
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Appendix A

What Was Your Experience?

Help UNH Nursing Students understand the experience of body image and weight gain during pregnancy!



- **Experienced pregnancy as an adolescent (under the age of 20) and...**
- **Are currently over the age of 18**

You could help us greatly!

We will be here (insert date) with a 5 minute questionnaire if you wish to participate

Thank you for your consideration!

Appendix B

Hello! Our names are Liana Newcombe and Jessica Hinkley. We are undergraduate nursing students at the University of New Hampshire in the United States. We are conducting a study for our senior thesis that looks at the relationship between body image and weight gain during pregnancy for adolescents. We are asking you to fill out this questionnaire because you experienced pregnancy during your adolescent years and can help us gain a greater understanding in this area. The questionnaire will take you approximately five minutes to complete and your participation is completely voluntary. We are looking for approximately ten participants. At the completion of the questionnaire, you will be asked if you would like to participate further in the study by providing telephone number. If you choose to do so, you will then be contacted by telephone and asked a series of open-ended questions; this should take no longer than fifteen minutes and will be recorded for quality purposes. The best efforts will be made to keep the data confidential; however findings may be shared with our research mentors at UNH. Your identity will be kept confidential as well, unless information presents that is required to report by law (for example, child abuse or threatened violence must be reported). As soon as our data is collected and the winners of the drawing are selected, the recordings and identifying factors will be destroyed. Descriptive statistics will be used to analyze the questionnaires, with the interviews being analyzed using thematic analysis. If you feel uncomfortable answering any questions you may leave them blank and may stop the questionnaire and/or interview at any time. We will present our findings at the Undergraduate Research Conference held at the University of New Hampshire in the Spring of 2012. We anticipate no risk for you, as you are free to share with us only what you wish. If you choose to participate in the telephone interviews, you will be entered into a drawing for one of three \$20 visa gift certificates. The potential benefits also include providing insight of the study to other researchers, as well as spreading the understanding of this topic to the community.

We can be reached anytime through e-mail at either ljw36@wildcats.unh.edu (Liana) or jlu78@wildcats.unh.edu (Jessica).

If you have any questions about your rights as a research subject you may contact Julie Simpson at UNH Research Integrity Services by calling (603) 862-2003 or e-mailing julie.simpson@unh.edu.

Thank you for your time and participation!

Printed Name

Signature

Date

Appendix C

Questionnaire

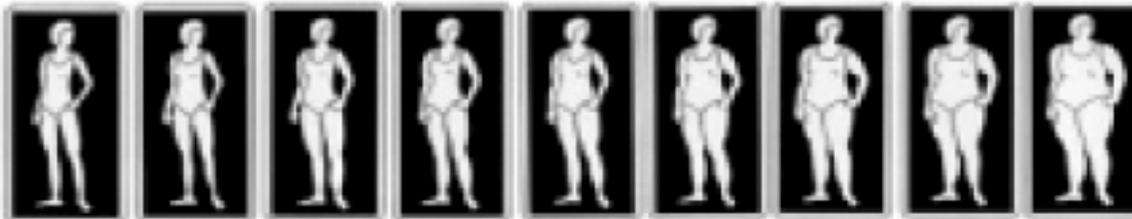
Age at delivery: _____ years old Age currently: _____ years old

What was your prepregnancy weight? _____ lbs How tall are you? ____ ft ____ in

What was your weight at your last prenatal visit? _____ lbs

What did your baby weigh at birth? ____ lbs ____ oz What is your current weight? _____ lbs

Circle the picture that best represents what you considered an **ideal body size before** pregnancy:



Circle the picture that best represents your size **before** becoming pregnant:



Would you be willing to participate further and be contacted for a brief telephone interview?

You will be asked a few open-ended questions about your experience and should not last more than fifteen minutes. If so, please provide the following information:

Phone number: (____) _____

Best time of day to reach you: _____

* By participating in the brief telephone interview, you have the option to be entered in a drawing for one of three \$20 visa gift cards to use as you wish!

Thank you so much for taking the time to complete our questionnaire!!

Appendix D

Telephone Interview Form

How did your body image change during your pregnancy?

How do you think your body image affected the amount of weight you gained during pregnancy?

During pregnancy, what kind of eating and exercising behaviors did you participate in? (for example, dieting, eating healthier, bigger portions, withholding food, excessive exercise, purging, etc.)?

Why did you participate in these behaviors?

During pregnancy what kind of support and information regarding weight gain did you receive from healthcare professionals?

Do you feel this support/information was adequate or did you wish to receive more?

Who did you discuss weight gain or body image with during pregnancy?

How did this support impact your weight gain and/or body image?

What suggestions do you have for health care professionals to improve healthy weight gain behaviors in pregnant adolescents?

Thank you so much for your time and participation! Would you like to be entered in a drawing for a \$20 gift card to Barnes & Noble? If so, is this an acceptable number to contact you if you are the winner?