

Dietary Change and Nutritional needs during Pregnancy

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Abstract

Women often make dietary changes during pregnancy; however, dietary modifications and reasons for changes are not well studied. We aimed to describe the dietary changes made during pregnancy, describe reasons for dietary changes, and determine what changes aligned with recommendations. Women commonly reported increasing their intake of milk products, fruit, and sweet items and commonly decreased or eliminated intake of caffeine, alcohol, and meats. Women frequently reduced intake of foods for the baby's health and increased foods to satisfy cravings. Changes made commonly aligned with recommendations for caffeine, alcohol intake, food safety, milk and alternatives, and fruit. Changes contrary to recommendations were common for fish and meats. The dietary changes women make during pregnancy appear to reflect women's efforts to balance physiological changes accompanying pregnancy with the desire for healthy pregnancy outcomes. Understanding the reasons behind dietary change during pregnancy will help researchers and health professionals design effective strategies and public health messages to promote healthier pregnancies.

Keywords: pregnancy, nutrition, diet, female, food habits

1. Introduction

A healthy, balanced diet during pregnancy is essential to support optimal growth and development of the fetus and the physiological changes that occur in the mother. Fundamental aspects of healthy dietary behaviors during pregnancy include consuming foods that contain optimal amounts of energy as well as macro and micronutrients, achieving appropriate weight gain, adhering to general and pregnancy-specific food safety recommendations, and avoiding ingestion of harmful substances. Previous studies have shown that if such behaviors are not adopted, there is an increased risk of adverse pregnancy outcomes including low birth weight, pre-term birth, and neurodevelopmental problems such as fetal alcohol spectrum disorder.

Additional recommendations include increasing water intake and avoiding foods associated with food-borne illnesses such as undercooked fish and meat, raw eggs, unpasteurized products, and raw sprouts. Although these guidelines exist to help women select a healthy diet, the extent to which women change their diets to meet pregnancy-related guidelines is unknown.

During pregnancy, motivation for eating a healthy diet may change relative to the non-pregnant state as women prepare for motherhood and consider the impact of their dietary intake on the baby's health. Personal values and beliefs about nutrition in pregnancy, advice from health

professionals, and physical and physiological changes may interact with determinants of eating behaviors present in the non-pregnant state (e.g., personal preferences, time, money) to change diet-related behaviors. Although most women are aware that healthy eating is important during pregnancy, women may lack knowledge of specific dietary recommendations or may not have the skills required to improve their diet. Healthy eating may also be challenging during pregnancy as women face barriers such as food aversions, cravings, nausea, vomiting, tiredness, constipation, hemorrhoids, and heartburn. Women may receive and follow advice from a variety of sources, including health professionals, peers, and educational resources, which influences their choices during pregnancy.

While several international studies have assessed diet before and during pregnancy, these studies have not examined reasons why women may be motivated to make such changes. Understanding factors that motivate or deter pregnant women from making dietary changes is important for devising appropriate means to promote healthy eating behaviors in this population. Therefore, the objectives of this study were to: (1) describe the dietary changes women report making during pregnancy; (2) describe why women made these dietary changes; and (3) determine what changes women make that align with prenatal nutrition recommendations and what motivates them to make these changes.

2. Materials and Methods

Maternal demographics information was collected by a questionnaire and included women's current age, pre-pregnancy weight, self-reported gestational age, ethnicity, level of education, marital status, and household income.

Dietary changes made were assessed using a Dietary Changes Questionnaire designed for the current study. The Dietary Changes Questionnaire was an open-ended survey that asked participants to use their own words to describe the changes they made to their diet since becoming pregnant by listing all foods, beverages, and supplements that they had decreased, eliminated, increased, or added to their diets. For each of the items changed, participants were asked to include the frequency of consumption before and during pregnancy, the normal serving size, and the reason for the change. Sample answers were provided for each question as a guide. Because of the self-reported nature of this questionnaire, the information gathered reflects women's perceptions of the changes they made and their beliefs about why changes were made.

3. Results

3.1. Dietary Changes

Women reported making an average of six changes to their diets. Women reported increasing or adding foods in the Vegetables and Fruit, Grain Products, Milk and Alternatives, and Other Food groups more frequently than they reported decreasing or eliminating these foods. Within the Vegetable and Fruit group, the increase came primarily from increasing fruit intake; 25% reported increasing fruit consumption and only 1% reported decreasing fruit intake, whereas, for vegetables, 13% of women reported increasing consumption and 13% reported decreasing or

eliminating a vegetable. Women reported decreasing or eliminating foods from the Meats and Alternatives group more frequently than they reported increasing foods from this group.

In the Other Foods category, participants reported increasing the consumption of sweet foods (16.3%) more frequently than savory (11.3%) or spicy (1.3%) foods. When sweet foods and sweet beverages were combined, 25.1% of participants increased or added sweet items to their diets. More than half of participants reported eliminating a food item classified in the "Miscellaneous" category; these items included chewing gum, artificial sweeteners, garlic, and salad dressing. Beverage intake changed substantially during pregnancy as coffee, and tea were frequently decreased or eliminated from the diet.

3.2. Reasons for Changing Dietary Intake during Pregnancy

The most common reasons cited for reducing or eliminating specific foods or groups of foods were health of the baby, concern, aversions, and nausea. Cravings, nutritional content, health, enjoyment, and to decrease illness were the most frequently reported reasons to increase or add new food items to the diet. Foods consumed for a specific nutrient included nuts and seeds for protein (10.3%), cereal for fiber (9.2%), and fish for omega 3 fatty acids (4.6%). Items such as starches (26.8%), sweet foods (19.6%), and soda (12.5%), were commonly increased or added to the diet to help decrease illnesses including constipation, upset stomach, and heartburn.

3.3. Making Changes Aligning with Prenatal Nutrition Recommendations

The most common reasons women reported for making changes to meet caffeine and food safety recommendations were the baby's health and concern. The primary reason women increased their intake of milk and alternatives was for the nutrient content, followed by enjoyment and craving. Women's primary reasons for increasing their vegetable and fruit intake were for cravings, enjoyment, and for a nutrient (most commonly fiber).

Women who increased their intake of meats and alternatives most commonly reported making this change to satisfy a craving or for a particular nutrient (most commonly protein-only three women mentioned iron). Those who decreased their intake of meats and alternatives most commonly reported that the change was due to aversions or nausea. The most common reason women increased their cooked fish intake was the omega-3 fatty acid content. The main reason women reported for decreasing or avoiding cooked fish was to avoid mercury contamination.

While many women increased intake of folate containing foods during pregnancy (i.e., fruit, grain products made with enriched flour), the most common reasons for increasing these foods were cravings, enjoyment and, for grain products, to decrease illness. No women indicated that they increased their intake of grains or vegetables and fruit in their diet to improve their intake of folate or folic acid.

4. Discussion

The patterns of dietary change during pregnancy reported in this study indicate that women understand and report reducing intake of foods that could harm their pregnancy, but do

not increase their intake of foods that provide important nutrients required for pregnancy. This suggests that women do not prioritize having a nutrient-dense diet when making dietary changes, which may result in suboptimal intakes of nutrients that are key for prenatal development.

4.1. Reasons for Changing Dietary Intake During Pregnancy

This study extends our knowledge of dietary changes during pregnancy by documenting women's reasons for undertaking specific changes. Overall, women who reported increasing their intake of food items did so because of a craving, while they decreased their intake of foods to promote the health of the baby. Previous studies have shown that food cravings are a strong motivator for increasing food intake among pregnant women and that pregnant women consume fewer foods that could pose a safety risk than non-pregnant women. Together, these results suggest that there are a number of factors that affect intake among pregnant women and that women experience multiple, and sometimes contradictory, influences that may affect food intake during pregnancy. Health care providers should help women explore these multiple factors when working with clients to identify feasible and practical strategies to optimize food intake for pregnancy. The present study's simultaneous examination of women's behaviors and motivations is unique and provides vital information that may help to establish target areas and strategies for intervention in the future.

4.2. Making Changes Aligning with Prenatal Nutrition Recommendations

Our analysis of the changes women made that align with nutrition recommendations suggests which recommendations are known and salient to women and what factors motivate women to make these changes. The findings for caffeine, alcohol, and foods with safety concerns indicate that women are aware of recommendations to reduce their intake and that fear of harming the baby is an important factor that women consider when making these changes. Women's reported reasons for increasing intake of milk and alternatives and fruit suggest that women are likely to add healthy foods to their diets if the foods are also craved or enjoyable to consume.

Many women reported decreasing intake of both cooked fish and meats and alternatives; these changes are contrary to recommendations. These findings indicate that positive dietary changes may be difficult to make if recommendations are complicated as with fish (women are recommended to eat fish but to avoid mercury-containing fish) or if physiological symptoms of pregnancy such as nausea and aversions reduce the intake of recommended foods. Previous studies have shown that women struggle to understand recommendations for fish intake during pregnancy and that aversions to meats are common during this time. Women may also rely on supplemental sources of the key nutrients in fish and meat to meet recommendations.

5. Conclusions

This study has described what changes women make to their diets during pregnancy and their reasons for making these changes. In addition, it has identified which changes women make that align with dietary recommendations and which dietary recommendations may be more challenging for women to achieve. Examination of the women's reported reasons behind their

dietary changes suggest that the health of the baby is often cited and that women balance a range of other factors such as cravings and nausea when deciding what changes to make. This study also shows that women frequently make changes to reduce intake of compounds that could harm their pregnancy, but are less likely to increase their intake of foods that provide key nutrients. These findings give insight into how and why women make changes to their diets during pregnancy and researchers and practitioners can use this information to inform the development of practical, feasible interventions to help women optimize their dietary intake during pregnancy.