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Falling short of dietary guidelines – What do Australian pregnant women really know? A cross sectional study

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ABSTRACT

Background: Maternal diets are not consistent with dietary guidance and this may affect the health of mothers and their infants. Nutrition knowledge and motivation may be important factors.
Aims: To assess pregnant women's diets in relation to consistency with the Australian Guidelines for Healthy Eating (AGHE); factors influencing women's adherence to the recommendations; and women's attitudes towards pregnancy-specific nutrition information.
Methods: A cross-sectional study using convenience sampling was undertaken at five hospitals in New South Wales (Australia) and through an online link (October 2012 to July 2013). $N = 388$ pregnant women completed the survey. Categorical data were analysed using Chi square and logistic regression with significance set at $P < 0.05$.
Findings: Most participants were highly motivated to adopt a healthy diet, believed they were trying to do so and that knowing about nutrition in pregnancy was highly important. Reported dietary intakes were poor. No pregnant women met the recommended intakes for all five food groups. Poor knowledge of these recommendations was evident. Knowledge of selected recommendations (for *Fruit*, *Vegetables*, and *Breads and Cereals*) increased the likelihood of those foods' consumption 8 (95% confidence interval [CI], 2.3–27.7), 9.1 (95% CI, 2.6–31.3) and 6.8 (95% CI, 3.4–13.7) times respectively.
Conclusion: Pregnant women had high levels of motivation and confidence in their ability to achieve a healthy diet and understand dietary recommendations, but actually demonstrated poor knowledge and poor adherence to guidelines. Mistaken or false beliefs may be a barrier to effective nutrition education strategies.

Summary of Relevance:

Problem or Issues

- Women's knowledge of nutrition and dietary practices during pregnancy.

What is Already Known

- Pregnant women do not sustain optimal diets.
- Influences on women's nutrition knowledge and their motivations to maintain a healthy diet are not well understood.

What this Paper Adds

- Although pregnant women are highly motivated and confident of their ability to sustain a healthy diet, they do not adhere to recommended dietary intakes. Many women misjudge their understanding of nutrition information, and may not seek access to accurate information.
- Health professionals may miss opportunities to provide dietary information and support.

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1. Introduction

Poor nutrition has the potential to negatively impact on mothers' and babies' health, contributing to poor maternal and infant outcomes. Adverse maternal outcomes include increased risk of inappropriate gestational weight gain,[1] which has been associated with higher risks of pre-eclampsia, macrosomia and caesarean section.[2] Exposure of the foetus to maternal obesity, diabetes and unhealthy gestational weight gain can increase their risk of developing childhood obesity and chronic diseases later in life.[3,4]

Healthy eating during pregnancy can be defined as women's ability to observe healthful eating practices, and to adhere to dietary recommendations that ensure nutritional requirements of pregnancy are met.[5] While healthy eating becomes critical for the health of the mothers and their infants, many women do not sustain an optimal diet during pregnancy.[6] Some pregnant women's diets are lacking in key nutrients including folate, iron and fibre,[7] or are not meeting the Australian Guide for Healthy Eating (AGHE) for some of major food groups (*Fruit*, *Vegetables*, *Breads and Cereals* (now *Grains*) and *Meat* and its alternatives).[6,8,9] Reasons for this non-adherence with dietary guidelines remain unclear.

To support women to achieve safe, healthy and balanced diets during pregnancy, it is important to gain insights into the factors influencing pregnant women's dietary behaviours. Dietary behaviours during pregnancy are influenced by a complex set of factors related to the individual and her environment, including physiological: pre-pregnancy BMI, nausea and vomiting; cognitive/perceptual: knowledge and attitudes; socio-economic: income, marital status; and institutional and community factors.[5]

Nutrition knowledge is one of many factors influencing pregnant women's dietary behaviour.[5,10,11] Nutrition education for pregnant women has been shown to have positive impacts on their nutritional status and reduce excessive gestational weight gain,[12] reduce the number of infants born weighing over 4 kg, lessen the incidence of respiratory distress syndrome, and reduce length of hospital stay.[13] Furthermore, pregnant women have been found to be motivated to adopt a healthy diet[14] and their attitudes have been reported to influence their dietary behaviours.[11] However, variation in women's motivations and attitudes towards healthy eating have been reported: some women consider pregnancy a "turning point" towards healthier eating while others consider it as "time-off" from healthy eating.[15]

A lack of knowledge relating to the benefits and food sources of some key nutrients (such as omega 3 fatty acid) as well as the health impact of deficiencies in nutrients (such as iodine) has been reported among pregnant women.[16,17] A lack of knowledge regarding recommended weight gain during pregnancy has also been reported.[18,19] This knowledge gap may have contributed to low intakes of key nutrients, such as iodine[16] and omega 3 fatty acid,[17] and has also been reported to impact on achievement of gestational weight gain recommendations.[19]

To date, limited studies have reported on the association between women's knowledge about the dietary recommendation of major food groups, their attitudes and motivations for healthy eating and adherence with dietary guidelines. The aims of this study were:

1. To determine the consistency of pregnant women's dietary intake with the Australian Dietary Guidelines for Healthy Eating (AGHE) with respect to the five food groups recommendations.
2. To examine the influence of women's nutrition knowledge and motivations for healthy eating on their self-reported adherence to dietary recommendations.
3. To explore pregnant women's attitudes towards selected pregnancy-specific, nutrition information.

2. Methods

2.1. Study design

This cross-sectional study used convenience sampling to recruit pregnant women to complete an online survey. The survey was designed to be self-completed and participation was anonymous. The survey was available only in English.

2.2. Survey administration and data collection

Between October 2012 and July 2013, pregnant women were invited to participate in a survey via: verbal invitations at public pregnancy/baby expositions (Wollongong) and in antenatal clinic waiting rooms in five New South Wales (NSW) hospitals; and invitation/information leaflets inserted in sample/information bags distributed at pharmacies and some NSW hospitals and via two NSW baby retail stores. Women attending expositions and antenatal clinics were given a choice to complete the survey on site (iPads were offered) or in their own time (an information leaflet was provided which included a link to complete the survey online). Prospective participants were informed that participation was voluntary. Survey participants also promoted the survey to friends verbally and through social media, increasing the number of participants. Participants were eligible to enter a draw for one of three, AU$50 gift vouchers if they completed the survey.

2.3. Survey development

The questions of this study were derived from a multidimensional, 109 items survey that was developed using an existing survey[20] and components from four validated surveys.[21–24] New pregnancy-specific questions were incorporated. The survey was pilot tested by four dietitians, five university researchers, a statistician and ten pregnant women, and amended based on comments received. More details about the survey are described elsewhere (Bookari et al., 2016).

2.4. Measures and outcomes

The outcomes of interest in this study were: pregnant women's adherence to the recommended intakes of five food groups; knowledge about the recommended intakes of five food groups; level of motivation for maintaining a healthy diet; and attitudes towards pregnancy-specific, selected nutrition information.

2.4.1. Adherence to recommended intakes of five food groups

Dietary adherence was assessed with a validated open-ended, three-question tool (Food Frequency Questionnaire, FFQ) that asked about number of serves of *Fruit*, *Vegetables*, and *Dairy* foods consumed per day, which has been shown previously to reflect 75% of the variance in a woman's diet.[24] A further three items were added to assess women's dietary adherence to recommendations for all five food groups and 'extras' (discretionary choices or 'extras', including energy dense but nutrient low foods such as confectionery, honey, jam, cakes, meat pies, pastries). For each food group some illustration examples of the quantities and kinds of foods equal to one serving were provided.[25]

The design of this section was based on the AGHE 2003 recommendations regarding food intake for pregnant women: *Fruit/Vegetables* (4/5–6 serves/day), *Meat and its alternatives* (1.5 serves/day), *Dairy* (2 serves/day) and *Breads and Cereals* (4–6 serves/day).

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