NEW ZEALAND RESEARCH

Women's experiences of changes in eating during pregnancy: A qualitative study in Dunedin, New Zealand

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ABSTRACT:

Background: The goal of optimal nutrition in pregnancy is to improve health outcomes for both mother and child. Healthy weight gain in pregnancy has therefore become recognised as an important aspect of perinatal care. Intuitive Eating and related 'mindful eating' have been associated with lower gestational weight gain and improved glucose control in pregnancy. Healthy weight gain in pregnancy is a current public health promotion message in New Zealand.

Objective: To explore women's experiences of eating in pregnancy, in the context of intuitive eating.

Method: This was a qualitative interview-based study of 12 purposively sampled pregnant women referred by their Lead Maternity Carer, in New Zealand. We investigated these women's perceived experiences of how their eating changed in pregnancy, specifically in the context of the phenomenon of intuitive eating. Participants were interviewed incorporating a cognitive 'think-aloud' process, whilst completing the Intuitive Eating Scale Questionnaire, followed by a semi-structured interview to discuss their experiences of eating. Themes were derived using a general inductive approach.

Findings: Four themes regarding eating during pregnancy were identified: Theme one - How women feel; Theme two - External influences; Theme three - Changed eating by choice; and Theme four - Motivation to change. Changes in eating were driven by a variety of reasons which differed between women and between pregnancies. Participants described pregnancy as a time of change with regard to their experiences of eating.

Conclusion: The findings of this study support Phelan's model of pregnancy as a teachable moment for eating behaviours, which provides a potential opportunity to inform women about healthy eating.

Key words: Health behaviour, eating, weight, pregnancy, qualitative study

INTRODUCTION

Optimal nutrition in pregnancy includes: a focus on improving micronutrients vitamins and minerals; reducing risk by avoiding pathogen-contaminated foods (especially listeria); and optimising appropriate caloric intake. The goal is to improve health outcomes for both mother and child. Women's experiences of changes they may make to their eating in pregnancy are therefore important to understand and could help to provide insight into how to effect positive change (Wennberg, Lundqvist, Hogberg, Sandstrom, & Hamberg, 2013).

Recent efforts to identify the origins of human obesity have focussed on the perinatal environment and epigenetic changes (Gluckman & Hanson, 2008). Nutrition during pregnancy has therefore become an area of increasing interest and importance. Healthy weight gain in pregnancy has become recognised as an important aspect of perinatal care, focused around optimising wellbeing for both the mother and child. Gestational weight gain (GWG) within the 2009 United States Institute of Medicine (IOM) guidelines (Rasmussen & Yaktine, 2009) is associated with improved outcomes including, but not limited to, lower rates of: small and large for gestation infants, maternal hypertensive disorders and childhood obesity (Kapadia et al., 2015; Oken, Taveras, Kleinman, Rich-Edwards, & Gillman, 2007; Viswanathan et al., 2008). New Zealand has adopted these recommended GWG guidelines and healthy weight gain in pregnancy is a current public health promotion message (Ministry of Health, 2014).

Pregnancy has been recognised as a potential teachable moment with regard to a variety of health behaviours, including eating behaviours (Phelan, 2010). Teachable moments are naturally occurring life or health events that can motivate individuals to adopt risk-reducing behaviours (McBride, Emmons, & Lipkus, 2003). Using the model described by Phelan, pregnancy might be considered an opportunity to provide advice about eating behaviours due to the presence of a number of factors, including increased emotion, increased perceived risk, increased perceived positive outcomes, and a change to social role (Phelan, 2010).

Intuitive eating (IE) is the concept of eating based on hunger and

satiety cues rather than more emotionally based eating (Tylka, 2006). It is a specifically anti-dieting model (Gast & Hawks, 1998). IE and related 'mindful eating' have been associated with lower GWG (Lopez-Cepero et al., 2015) and improved glucose control in pregnancy (Youngwanichsetha, Phumdoung, & Ingkathawornwong, 2014). Investigating changes that may occur around women's eating in pregnancy and the reasons women give for these changes are necessary steps towards the development of ways to enhance behavioural changes that optimise healthy GWG and long-term health outcomes for mother and child. As part of a study of IE in pregnancy, which included the validation of the Intuitive Eating Scale (IES) (Tylka, 2006) in pregnancy (reported separately), we explored the women's experiences of eating in pregnancy in the context of intuitive eating.

Intuitive eating and related 'mindful eating' have been associated with lower GWG and improved glucose control in pregnancy.

METHOD

This was a qualitative study which used a semi-structured interview, incorporated with a 'think aloud' process during the interview, of 12 purposively selected women, designed to explore women's experiences of change in eating in pregnancy. All participants were recruited in New Zealand by midwife Lead Maternity Carers (LMCs), who are the most common primary maternity care professionals in New Zealand (New Zealand College of Midwives, 2012). The LMCs gave women an information sheet about the study and a form with which the latter could express interest in participation by returning it in a postage-paid envelope to a research assistant. The form also included a request for details of the woman's parity, gestation, weight, height, ethnicity and details about the presence or absence of nausea or vomiting. Based on responses to these questions using a sampling grid (Table 1) and a maximum variation sampling approach (Marshall, 1996), the primary researcher (HP), who is a senior lecturer and consultant obstetrician, purposively selected 12 participants in order to provide a range of BMI, parity, gestation, presence or absence of morning sickness and nausea, and to ensure representation of women identifying their ethnicity as Māori. The research assistant invited women to join the study; they were offered interview venues within the university and hospital. All the women were interviewed in the hospital. They were reimbursed for their travel and parking costs with a NZ$50 supermarket voucher.

Table 1. Sampling grid

BMI 20-25	BMI >35
Morning sickness yes	Morning sickness yes
Morning sickness no	Morning sickness no
Age <35	Age <35
Age ≥35	Age ≥35
Trimester 1st	Trimester 1st
Trimester 2nd	Trimester 2nd

Interviews were carried out by HP, who had no relationship with any of the participants at the time of the interview. Written consent was obtained by HP prior to commencing the interview. Partners or support people were allowed to attend solely for the purposes of childcare. Each interview was audio recorded and lasted between 30 and 60 minutes. This period included completion of the IES (Tylka, 2006), which is a 21-item questionnaire (Table 2) on intuitive eating behaviours, using a five-point Likert scale. A cognitive 'think aloud' process was used, which involves reading aloud the instructions and questionnaire items and talking through one's thought processes in coming up with answers (Drennan, 2003). Following completion of the 'think aloud' questionnaire, there was a semi-structured interview to discuss the woman's experiences of eating (see Table 3). The semi-structured questions were collaboratively developed by the research team, which included a rehabilitation and women's health researcher (EJCHS) and a health psychology researcher (GJT) in addition to the primary researcher (HP). The aim of the interview questions was to investigate pre-pregnancy eating and establish what changes women made to their eating during pregnancy with the goal of understanding the reasons for change.

Table 2. Intuitive Eating Scale questions

Unconditional permission to eat subscale	
Q1	I try to avoid certain foods high in fat, carbohydrates, or calories.
Q4	If I am craving a certain food, I allow myself to have it.
Q5	I follow eating rules or dieting plans that dictate what, when, and/or how much to eat.
Q9	I get mad at myself for eating something unhealthy.
Q14	I have forbidden foods that I don't allow myself to eat.
Q18	I feel guilty if I eat a certain food that is high in calories, fat, or carbohydrates.
Q19	I think of a certain food as "good" or "bad" depending on its nutritional content.
Q20	I don't trust myself around fattening foods.
Q21	I don't keep certain foods in my house/apartment because I think that I may lose control and eat them.
Eating for physical rather than emotional reasons subscale	
Q2	I stop eating when I feel full (not overstuffed).
Q3	I find myself eating when I'm feeling emotional (e.g., anxious, depressed, sad), even when I'm not physically hungry.
Q6	I find myself eating when I am bored, even when I'm not physically hungry.
Q10	I find myself eating when I am lonely, even when I'm not physically hungry.
Q16	I use food to help me soothe my negative emotions.
Q17	I find myself eating when I am stressed out, even when I'm not physically hungry.
Reliance on internal hunger/satiety cues subscale	
Q7	I can tell when I'm slightly full.
Q8	I can tell when I'm slightly hungry.
Q11	I trust my body to tell me when to eat.
Q12	I trust my body to tell me what to eat.
Q13	I trust my body to tell me how much to eat.
Q15	When I'm eating, I can tell when I am getting full.

Table 3. Semi-structured questions and prompts		
Question	**Prompts**	**Purpose**
Would you please tell me about your eating before you became pregnant?	Things you enjoyed eating Amounts you ate When you ate Who you ate with	To establish eating behaviour prior to pregnancy
Now you are pregnant what has changed?	Things you enjoy eating Amounts you eat When you eat Who you eat with	To identify changes in eating behaviour which the woman associates with pregnancy
Would you please tell me some of the reasons you think these changes have happened?	Is it due to: Nausea Hunger / satiety (fullness) Convenience Advice - health professional or others Other people's opinions Safety - yours or your baby's? "Healthiness"	To identify ideas about why eating habits change in pregnancy
Do you think women would find pregnancy is a time when they would be motivated to change their way of eating?	For example, pregnancy has been identified as a time women are motivated to stop smoking.	To establish if women think pregnancy would be a time when they would be motivated to change lifetime eating habits

Table 4. Demographics of interviewed women	
BMI	
20-25	5
25-30	2
>30	5
Age	
≥35	2
<35	10
Parity	
Nulliparous	7
Multiparous	5
Nausea	
Yes	10
No	2
Stage of pregnancy	
<14 weeks	4
14-20 weeks	3
>20 weeks	5
Ethnicity	
NZ European	8
Māori	2
Samoan	1
Mexican American	1

The interviews were transcribed by a professional secretary and the transcriptions were checked by an independent researcher, both of whom signed confidentiality agreements. Pauses in participants' speech were noted with ellipses (…). Round brackets were used to note details that were removed to preserve anonymity. Points of clarification were added using square brackets. Thematic analysis was performed using a general inductive approach (Thomas, 2006). Data were managed using word documents. Each interview transcript was read and responses to the 'think aloud' task and semi-structured interview questions were included within the analysis.

A case summary of each participant's interview was written by HP and reviewed with the research team to identify 'meaning units'. Subsequently, sub-themes were developed by HP and reviewed with the research team. These sub-themes were then compared by HP with participant responses to ensure they were representative. A final set of themes which overarched the sub-themes was reviewed with the research team and no disagreements were evident.

This study received ethics approval from the Lower South Health and Disability Ethics Committee. Ref: LRS/10/EXP/031.

FINDINGS

Using a maximal sampling approach, 13 women were directly invited to participate (to achieve the intended 12 participants) from the 26 women who expressed an interest. There were too few women with a BMI>35 to use this as a primary sampling measure as intended (i.e., BMI <25 and >35).Therefore a range of BMI was selected (see Table 4). One participant's partner attended part of the interview to provide childcare, and did not contribute to the interview. The demographics of the women are shown in Table 4.

Four themes regarding eating during pregnancy were identified. Changes in eating were driven by a variety of reasons which differed between women and between pregnancies.

Theme one: How women feel

Participants described changes in their eating during pregnancy due to how they felt (Table 5); this included emotional and physical feelings. Women described the effect of nausea on their eating early in pregnancy. This affected multiple facets of eating, namely hunger, choice of food, frequency of eating, and amount of food.

Participants who experienced nausea and vomiting early in pregnancy described the change from feelings of nausea to feelings of fullness as pregnancy progressed. All 12 participants, whether they experienced nausea or not, described their eating as being affected by a greater awareness of feelings of fullness during pregnancy. Other feelings described by participants were more emotional than physical. Some participants felt their eating was less driven by emotional reasons during pregnancy. This change may be because other more physical factors affect their eating

more than emotional ones. However, pregnancy can be a time of emotional change, particularly in situations where the pregnancy was unplanned or where a mother is unsupported. The complexity around making time for cooking/eating appeared to impact on food choices. Participant two described using spare time, when she may otherwise have been bored, to prepare food. In contrast, participant eight didn't cook because she wasn't inclined to clean up.

Table 5. Theme 1 - How women feel

Nausea	P7: I didn't eat much and my diet was fairly limited to kind of dry toast or… you know… those sorts of things um… and really had to make myself eat. P10: I don't want to spend too long in your mind thinking about which food…. you feel ill yeah and you won't eat then because you just… I actually feel quite nauseated thinking about, you know, the possibility of food.
Fullness	P3: I get halfway through and think, oh I can't eat any more, I have had enough. P8: I have one mouthful and then… bam I'm full!
Emotions	P10: I find myself eating when I'm feeling emotional (e.g., anxious, depressed, sad), even when I'm not physically hungry [reading item 3 on the IES]…. Um... prior to pregnancy I would agree. And haven't had the urge – it is definitely nothing to do with emotional eating – when I've been pregnant. P1: But the first pregnancy was kind of hard for me because for my family to accept, because um it was out of wedlock. There was this whole emotional stress thing behind that and kind of made me yup more hungry.
Feeling of a lack of time / inclination	P2: when I have the time now because pregnancy requires so much more effort, with like creating my meals and planning for lunches and things, so I think it's umm with that boredom time. Like if I don't have anything to do, I might spend more time preparing food. P8: Like when I was bored [prior to pregnancy] I was just like yeah… I would just have something to eat, just to eat it… but now [that she is pregnant] I don't know why but like I'm just… I think it's more the fact that I can't be bothered. Like I will be bored, and I will go to the fridge and then I will be like OK I would really quite like to eat that but I would have do this and I would have to do that, and then there would be a pile of dishes at the end of it and I just can't be bothered doing that.

Theme two: External influences

Participants described external influences on their eating behaviours (Table 6) sometimes leading to behavioural change and in other situations exacerbating stress and anxiety around food choices. Participants described the impact of advice and social judgement on their eating choices; for example, participant nine was describing that she feels pressured in her food choices and acknowledging that society considers McDonald's as a safe food in contrast to smoked chicken. Women described advice they received around the safety of food choices from a variety of sources, e.g., their mother and midwife.

Table 6. Theme 2 - External influences

Cultural/ social pressure	HP: You said the family were affecting what you were eating. P1: Yes. They just… because they knew that I like fatty foods and and they nagged at me so much in the first pregnancy I just couldn't be bothered with the whole nagging during this one, because it annoyed me so much that I didn't enjoy what I ate. P9: Yeah. I'd hate to be like you know huge big belly in 9 months and you know sitting down with a lovely smoked chicken sandwich or… and people going past and going "ugh… look at her… she's pregnant and she's eating smoked chicken!" Whereas if you were rather large in your pregnancy, you'd probably get away with it if you were in McDonald's eating a burger or at the fish and chip shop.
External advice	P4: Oh well just sort of my mum told me as well, to stay away from seafood while you are pregnant. P6: because when I got so freaked out about the whole milk thing, and because it said about yoghurt as well… in the end I was only buying one litre of milk and I was just buying little things of yoghurt, so I knew I could consume them within certain amount of times [to reduce the listeria risk due to open containers in the fridge]. P9: Ummmm… I still have like breast chicken, but um… don't really... well the midwife told me off the last time. She said what have you been eating and I said ham and she went "rrr… that's naughty!" So I have kind of cut the ham… I don't even buy ham at the supermarket any more.

Theme three: Changed eating by choice

Participants gave clear descriptions of changing their eating because of their knowledge and beliefs (Table 7). Some talked about how pregnancy affected their choices about food and eating, with the intent of staying healthy during pregnancy. In contrast, others described feeling it was acceptable to eat with less restraint during pregnancy. Participants described a personal concern for

effects on the baby from potentially unsafe foods that they thus chose to avoid. Ministry of Health food safety guidelines were noted to be a source of information that were used in participants' decision making.

Table 7. Theme 3 - Changed eating by choice

Wanting to stay healthy in pregnancy	P1: Being pregnant and it yeah just makes me aware that I take care of myself more than… when I am pregnant, but when I am not I just let myself go. P2: Yes. But I wouldn't say I would strictly avoid them [calories] but I think I would lean more to the other side in terms of allowing myself, especially now, to eat whatever I want, rather than the you might try and restrict somewhat if you're um... ahh if you're not pregnant, but when you are you have to eat. It's much more important, you are not going to diet.
Choosing to take food safety advice	P5: like the only things that I am cutting out are the things that can cause harm to the baby. If it wasn't going to cause harm to the baby, I would be eating it. P6: those higher risk foods that we are talking about in regards to the listeria and things like that that they talk about that can cause damage to the baby, and I think, yeah… it's just… I'm more… I guess I'm more aware of the fact that the baby's probably more susceptible to those sorts of things I think. P10: You know, I have been told by a few people that "oh the NZ soft cheeses are fine, it's pasteurised". I am not going to take the risk. It's... to me. It's on that Safety Guideline. I just don't want to take the risk.

Theme four: Motivation to change

Participants were all specifically asked whether they thought women would find pregnancy was a time when they would be motivated to change their way of eating (Table 8). Two distinct sub-themes emerged in relation to what might motivate change in eating during pregnancy in response to this question and elsewhere in the interviews.

Participants felt women would be highly motivated to change their eating if the changes would improve outcomes or reduce risk for their baby.

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Table 8. Theme 4 - Motivation to change

For safety of the baby	P10: like even if somebody said to me that "oh my gosh if you ate you know four pies in pregnancy, then it's probably going to make your baby overweight", you know, I would think "I don't want to do that". I don't want to inflict those choices upon my baby, and that… then that has no chances to change that genetic makeup or whatever, I would just completely steer clear, so… yes. P5: Oh definitely, like the only things that I am cutting out are the things that can cause harm to the baby. If it wasn't going to cause harm to the baby, I would be eating it. Like cakes and things like that. I would definitely be eating them.
The opportunity to establish the behaviour change	P1: and your children are a reminder of what you did when you were looking after yourself. P6: I guess it depends how likely that someone is to continue on [with behaviour change]. Or… it doesn't take long to start to keep those good habits so I mean, I guess nine months should be a long period of time to make a difference. P9: So I think if you got them early enough in their pregnancy, that it would become a way of life after pregnancy, so they can continue eating healthily.

DISCUSSION

The focus of this research was exploring how women changed their eating behaviours during pregnancy and whether these changes were compatible with a more intuitive style of eating. All participants described a change to eating behaviours, with the most consistent change being an increased awareness of fullness. Although fullness was a specific question on the IES, most women explored the issue further with descriptions of their degree of awareness, thus fullness was the clearest of all sub-themes identified. This is an interesting finding and suggests that pregnancy may be a useful time to teach women about the sensation of satiety, a component of IE, which could feasibly lead to higher levels of IE postpartum.

All participants described a change to eating behaviours, with the most consistent change being an increased awareness of fullness.

The results of our study were considered within the context of the factors described by Phelan as a necessary part of the 'teachable moment' as applied to pregnancy (Phelan, 2010). We identified themes which fit the Phelan model (Figure 1), suggesting that pregnancy is a teachable moment and women are more likely to change to health-supporting behaviour.

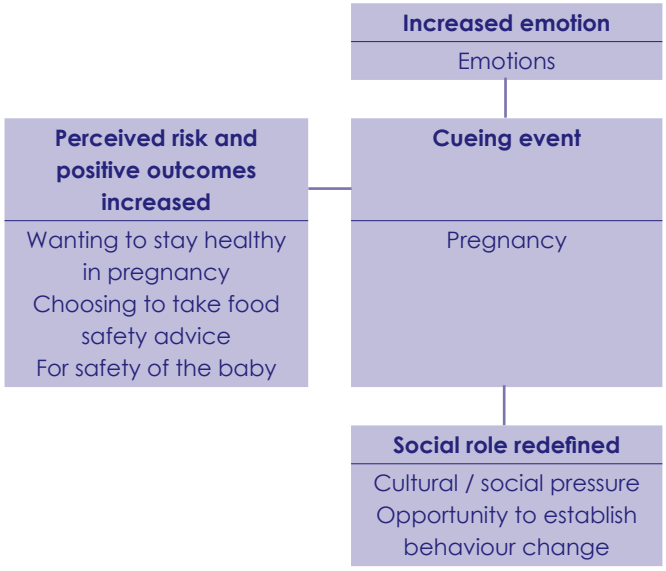

Figure 1. Themes identified within Phelan's model of a teachable moment

Women recognised pregnancy and breastfeeding to be a special time when women may be motivated to change eating behaviours, mostly for the wellbeing of their babies, and they acknowledged that this time was long enough to establish a sustainable change. For example, one participant noted: "… it doesn't take long to start to keep those good habits so I mean, I guess nine months should be a long period of time to make a difference."

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The World Health Organization describes a doubling of the prevalence of obesity in the world since the 1980s; to reduce this increase effective interventions are required (World Health Organization, 2011). The evidence that the perinatal environment impacts on obesity in the child means that interventions should be focused pre-conceptually (Gluckman & Hanson, 2008). However, around 40% of pregnancies are unplanned so a large proportion of women are unlikely to have adapted their eating behaviour pre-pregnancy (Morton et al., 2012). Whilst our study found that women changed their eating behaviour during pregnancy, there is still further work necessary to optimise healthy nutrition in the perinatal period. The sub-theme 2.1 - Cultural/social pressure - suggests women change their behaviour due to societal views. Until societal pressures on women are focused on healthier eating rather than some of the negative risk avoidance aspects presently described in Sub-theme 2.2 - External advice - it may be hard for women to choose the moderate risk of listeria in a smoked chicken sandwich over the high fat McDonald's meal described by one participant.

Diet is presently considered the most effective mechanism for optimising healthy gestational weight gain (Muktabhant, Lawrie, Lumbiganon, & Laopaiboon, 2015; Thangaratinam et al., 2012). Studies show high levels of GWG in excess of recommendations (Chung et al., 2013; Dodd et al., 2014). In view of the increasing epidemic of obesity and the potential positive effect of the perinatal environment on long-term risk of obesity, we wonder whether it is time to support a different approach to nutrition; one which promotes healthy choices rather than avoidance of certain foods. Additionally, we have demonstrated that pregnancy is a 'teachable moment' and suggest that this is a time when health professionals could be supporting and endorsing changes to eating behaviours.

STRENGTHS AND LIMITATIONS

There is the potential for a recruitment bias when recruiting participants to a study related to weight due to the sensitivity of the issue. However, the qualitative nature of the study and the purposive sampling enabled a wide range of participant demographics to be included. Further research is required to generalise these results on a population basis. Participants were New Zealand women under the care of midwifery LMCs. This study adds to the NZ literature on women's views of dietary changes in pregnancy.

CONCLUSION

Participants described pregnancy as a time of change with regards to their experiences of eating; particularly an increase in satiety. The findings of this study support Phelan's model of pregnancy as a teachable moment for eating behaviours (Phelan, 2010), which provides a potential opportunity to inform women about healthy eating. Changes in eating behaviours identified were consistent with the potential use of IE as a mechanism to improve levels of healthy GWG. However, further investigation of IE in pregnancy is necessary to establish the relationship between IE in pregnancy and GWG.

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