

## Author's Accepted Manuscript

Lived experiences of routine antenatal dietetic services among women with obesity: A qualitative phenomenological study

Nicola Heslehurst, Sarah Dinsdale, Helene Brandon, Camilla Johnston, Carolyn Summerbell, Judith Rankin



PII: S0266-6138(16)30229-7  
DOI: <http://dx.doi.org/10.1016/j.midw.2016.11.001>  
Reference: YMIDW1951

To appear in: *Midwifery*

Received date: 31 May 2016  
Revised date: 11 October 2016  
Accepted date: 11 November 2016

Cite this article as: Nicola Heslehurst, Sarah Dinsdale, Helene Brandon, Camilla Johnston, Carolyn Summerbell and Judith Rankin, Lived experiences of routine antenatal dietetic services among women with obesity: A qualitative phenomenological study, *Midwifery* <http://dx.doi.org/10.1016/j.midw.2016.11.001>

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting galley proof before it is published in its final citable form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain

Author names and affiliations:

Nicola Heslehurst<sup>a</sup>, Sarah Dinsdale<sup>b</sup>, Helene Brandon<sup>c</sup>, Camilla Johnston<sup>c</sup>, Carolyn Summerbell<sup>d</sup>, Judith Rankin<sup>a</sup>

<sup>a</sup> Institute of Health & Society, Newcastle University, Baddiley-Clark Building, Richardson Road, Newcastle upon Tyne, England, United Kingdom, NE2 4AX, nicola.heslehurst@ncl.ac.uk, judith.rankin@ncl.ac.uk

<sup>b</sup> Health and Social Care Institute, School of Health & Social care, Teesside University, Middlesbrough, Tees Valley, England, United Kingdom, TS1 3BX, s.dinsdale@tees.ac.uk

<sup>c</sup> Gateshead NHS Foundation Trust, Queen Elizabeth Avenue, Sheriff Hill, Gateshead, Tyne and Wear, England, United Kingdom, NE9 6SX, helene.brandon@ghnt.nhs.uk

<sup>d</sup> School of Medicine, Pharmacy and Health, Durham University, Stockton on Tees, England, United Kingdom, TS17 6BH, carolyn.summerbell@durham.ac.uk

Corresponding author:

Dr Nicola Heslehurst, Institute of Health & Society, Newcastle University, Baddiley-Clark Building, Richardson Road, Newcastle upon Tyne, NE2 4AX, nicola.heslehurst@ncl.ac.uk  
Tel: +44 (0)191 208 3823

Objective: To understand the lived experiences and views of being referred to an antenatal dietetic service from the perspective of pregnant women with obesity.

Design: A qualitative, interpretive approach using one-to-one in-depth interviews to explore the lived experience of pregnant women with obesity following referral to an antenatal dietetics service. Thematic content analysis was carried out by two researchers independently to develop data-driven themes.

Setting: One NHS Trust maternity and dietetic services, North East England, UK

Participants: Fifteen pregnant women with a booking body mass index  $\geq 30\text{kg/m}^2$  attending an obesity-specific antenatal dietetic service. All women were White, parity between 0-2, and BMI range  $30\text{-}51\text{kg/m}^2$ .

Findings: Four themes were identified within this concept. 1) Women's overall experience of the service: experiences were predominately positive with only two negative cases identified. 2) Process of referral: women placed importance on informative and in-person communication about the service, with health professionals, at the point of referral. 3)

Delivery of the service: dietitians were considered to be the experts and women wanted more frequent contact. 4) Content of the service: tailored advice enabled behaviour change, and women desired increased physical activity support and weight monitoring.

Key conclusions: Women reported an overall positive experience and thought that dietitians were the expert health professionals to support them. Women in this study felt that tailoring advice specific to their personal circumstances helped them implement changes, and had a strong interest in the nutritional benefits for fetal development. Women considered weight monitoring to be a positive element of the service; however, further research is required given the limited and conflicting evidence-base.

Implications for practice: It is important to incorporate women's experiences in the development and delivery of antenatal weight management services to facilitate person-centred care. Communication by health professionals at the point of referral is particularly important to provide accurate expectations of services and to reduce anxieties. Dietitians are considered to be appropriate experts to deliver these services, although they may need additional support to address women's physical activity needs in pregnancy.

#### Keywords

obesity, body mass index, dietetic, qualitative, experience, pregnancy

#### Introduction

Maternal obesity (body mass index (BMI)  $\geq 30\text{kg/m}^2$ ) is increasing in prevalence internationally (Brynhildsen et al., 2006; Ray et al., 2007; Heslehurst et al., 2010; Fisher et al., 2013) and is associated with complex inequalities, including deprivation and ethnic minority groups (Heslehurst et al., 2010, 2012). There are significantly increased associations with adverse outcomes for women and babies including congenital anomalies, perinatal mortality, macrosomia, gestational diabetes, maternal infections and preterm birth (Heslehurst et al., 2008; Stothard et al., 2009; Tennant et al., 2011; Lutsiv et al., 2015). In the UK, there are clinical guidelines to detect and manage co-morbidities associated with obesity (e.g. routine screening for gestational diabetes (Centre for Maternal and Child Enquiries (CMACE) and Royal College of Obstetricians and Gynaecologists (RCOG), 2010)), as well as public health guidelines for weight management before, during and after pregnancy (National Institute for Health and Care Excellence (NICE), 2010). These UK guidelines recommend that maternal obesity and weight management requires the input of dietitians or other appropriately trained health professionals to provide weight management support (NICE, 2010, CMACE-RCOG, 2010). However, there is a lack of evidence relating to women's experiences of dietetics services to inform service development needs.

A NHS maternity service in the North East of England implemented a dedicated hospital-based antenatal dietetic service for pregnant women with a BMI > 30 kg/m<sup>2</sup> as per national guidelines. The aim of the service was to reduce risk of complications in pregnancy associated with obesity through educating women about healthy eating and food safety in pregnancy, monitoring weight, and helping women to minimise gestational weight gain. Eligible women were provided with a leaflet describing the risks of maternal obesity at booking, and referred to the dietetic service. The initial 45 minute appointment was with a dietitian at the hospital site, with two 20 minute follow up appointments eight weeks apart. After 20 months of the dietetic service being established, only 9.4% of eligible women took up the referral which reflects the reported low uptake reported by other maternity units (Heslehurst et al., 2011; Fealy et al., 2014). Women were not involved in the development of this dietetic service.

This study aimed to gain a greater understanding of women's experiences of an antenatal dietetic service, and views on whether the care received met their needs to inform service development. This paper reports a component part of a larger qualitative study which aimed to explore women's lived experiences of being obese and pregnant to inform the development of services that women would find acceptable and utilise. The larger qualitative study identified two distinct overarching concepts. The first concept related to women's weight-related priorities in pregnancy and issues which they considered important and integral to their lived experience of being obese and pregnant. These perspectives incorporated their pregnancy-related experiences, as well as life experiences which contributed to how they felt about their weight during pregnancy. The core to the first concept was how women's reported priorities and experiences related to their engagement with the service, and the data informing this concept has been previously published, along with a full description of the methods and participants (REFERENCE REMOVED). This paper focuses on the second concept from this study where the core focus is on women's direct experiences of care relating to the antenatal dietetics services. The data informing this concept has not been previously published.

## Methods

A phenomenological approach was used to explore women's experiences of being referred to an antenatal dietetics service due to their obesity, in a NHS Trust in the North East of England with approximately 2000 annual births. Women were recruited using a combination of postal recruitment of women referred to the dietetic service (3% recruitment rate), and in-person methods (68% recruitment rate). The in-person recruitment involved the dietitian sharing the participant information sheet with all women after attending their clinic appointment, and asking if they were willing to speak with the researcher about the study.

The researcher (XX, trained in informed consent) was available in a separate private room to discuss the study in more detail and take informed consent with women who agreed to participate. The researchers placed importance on gaining an in-depth understanding of the individuals' experiences throughout data collection and interpretive analysis. One-to-one in-depth unstructured interviews were carried out between the researcher (XX) and pregnant women. Interviews were carried out in a range of locations of the women's choosing, including their homes, the maternity unit, or Sure Start Children's Centres in their local communities. Interviews were audio recorded and transcribed verbatim. Although the interviews were unstructured to allow women to control the focus based on their own personal experiences, broad discussion prompts were used to focus the interviews on the topic of the research. Prompts included their experience of being referred to the service, factors influencing their decision to accept the referral, what they wanted from this type of service, and their experience of the service. Through the process of in-depth interviewing, issues which women raised themselves were explored thoroughly. Towards the end of each interview, women were asked to summarise what they considered the most important issues to be in order to ensure that appropriate emphasis was placed on their experiences during the analysis. An interpretive analytical approach was employed, using thematic content analysis (Burnard et al., 2008) to identify and interpret themes which emerged from the data. Analysis was carried out by two researchers (XX and XX) to develop data-driven themes through a process of line-by-line open coding of the verbatim interview transcripts, identifying and refining categories of coding informed by the analytical and theoretical interpretations, developing a category system, and final coding of the data. An interpretative approach to the analysis incorporated the context of the discussions and the importance women placed on their experiences into the coding, to move beyond descriptive coding and explore the meaning behind the data when developing themes. Both researchers independently open-coded all interview transcripts, and coding was combined and agreed throughout the process of developing themes to represent the data. The developed themes were further cross referenced against the full transcripts and women's summaries to ensure the importance they placed on their experiences was represented in the final themes. Recruitment continued until data saturation, when no new themes were emerging, was apparent. The study was approved by XX University School of Health and Social Care ethics committee, County Durham and Tees Valley 2 NHS research ethics committee (reference 09/H0908/60), and XX NHS Trust research and development committee.

The results are presented in themes, with verbatim quotes from participants in italics. All names reported are pseudonyms. Quotes include women's pseudonyms, BMI and parity. Underlined sections of quotes indicate emphasis women gave to specific words. Ellipses (...) indicate where irrelevant data has been removed, and data in square brackets has been

## Findings

Fifteen pregnant women who had been referred to the dietetic service were interviewed (table 1). All women were White, had a parity of 0-2, and BMIs between 30-51 kg/m<sup>2</sup>. Five women had others present at the interview including their husbands (n=2), young children (n=2) and grandmother (n=1). The results of this study draw on women's experiences of the care received from the dietetics service, and the themes within this concept include women's overall experience of the antenatal dietetics service, process of referral, and delivery and content of the service.

### Theme 1: Women's overall experience of the antenatal dietetic service

The women interviewed described an overall positive experience of the service. They felt that attending the service had provided them with reassurance and confidence that they were benefiting their baby, which was of the greatest importance to women. In addition, women felt that the dietitians were interested in their health as well as their baby's, and were happy to have a health professional available to discuss their concerns and worries. However, women also reported that they had not been asked what they wanted out of the service.

"I'd always wanted to eat like a balanced diet, because everyone says you should eat a balanced diet but nobody ever explains it to you, and when you ask people just say 'oh that's not good for you, that's not good for you', and nothing ends up being good for you. I think it's information and stuff that I can use throughout the rest of my life, that's probably the most helpful thing" (Debbie, Parity 0, BMI 32kg/m<sup>2</sup>)

"I was never asked what I want, what I personally wanted out of it, it was just like 'we aim for you to have your weight management'...It was just a case of well 'we aim for you to be this'. No-one's asked me what I want... and what experience I'm looking for or anything like that so I think that would be [important], find out what the patient wants out of it really" (Lisa, Parity 1, BMI 47kg/m<sup>2</sup>)

Two women reported negative experiences. Vicky described issues with the referral process, and how her midwife gave her the leaflet about obesity-related risks for the mother and baby at booking as part of the referral process, with no explanation of the content of the leaflet or in-person risk communication. Vicky read the leaflet after the midwife left and was "devastated" by the description of risks related to her weight. The leaflet did not include constructive advice about how risks could be prevented and managed throughout antenatal

care, provided no information on weight management support or the dietetic service, and she had no health professional contact to discuss her concerns for a month. Amy described her follow up dietetic appointment and how her weight measurement showed excessive weight gain. She was reminded of the associated risks. On returning home Amy became upset due to the potential risks, but also because she felt she had followed the dietitians' advice and was surprised to have gained so much weight. She was subsequently weighed on three different sets of scales which showed she had not gained any weight, and she was reassured by her midwife that she did not show any signs of increased risk. Amy decided not to continue with the service.

## Theme 2: Process of referral

Women's expectations and understanding of what the dietetic service involved identified a lack of explanation about the referral. Some women were unsure of what to expect from the service before attending based on vague explanations from their midwives, such as the dietitian would help them "eat the right sort of foods" and "it would be better for their baby". Women wanted more explanation about the service at the time of referral, and stressed the importance of the explanation being in person rather than via letter or a leaflet to address any misconceptions and anxieties.

"I just didn't think that was the right way to actually tell you about the service [the referral letter]. Well it doesn't actually tell you about the service it just said, you know I'm fat make an appointment...it wasn't explained at the appointment that I'd be given the letter, just on my way out I was handed it [by the reception staff]...it would have been nice if they'd sat and explained what the service was about you know, because when I came for the first appointment I didn't know why I was coming or what was going to happen"  
(Philippa, Parity 1, BMI 32kg/m<sup>2</sup>)

"It was a very 'by the way' sort of off the cuff comment [the explanation about the dietetic referral by the midwife]...It was just 'oh because of your BMI I'm going to have to refer you to the dietitian okay?'...she didn't explain why I was going there...if she'd gone through it with me, and had explained to me...I wouldn't have been so horrified, and frightened and then angry really"  
(Vicky, Parity 0, BMI 32kg/m<sup>2</sup>)

In the absence of a full explanation about what the service involved, women perceived that they would have to follow a strict diet of "celery" which they associated with dieting, and foods they enjoyed would be "banned". Women's pre-conceptions of dietitians were that they would "nag" and "dictate" what they could or could not eat, and make them "feel bad" about their diets. Women also associated seeing a dietitian with weight loss and expected to have

to lose weight during pregnancy. Women expressed surprise about the dietitian's actual approach and relief that the focus was on a balanced and healthy diet rather than their pre-conceptions. The lack of explanation about the service at the point of referral made women feel fearful and nervous about attending the initial session.

"I just got the impression that it was all like salads and tuna and things like that, which I don't like salads very much and I don't like tuna and stuff so I thought it was going to be really difficult, I thought I wasn't going to be able to eat much that I liked... It was easier than I thought it would be. Like I say I thought it was going to be an extreme diet"

(Debbie, Parity 0, BMI 32kg/m<sup>2</sup>)

"I was scared you know to go,...I thought I'm going to get shouted at and told off and, I wasn't quite sure what I was expecting, until I got there and as it happened it was fine"

(Valerie, Parity 0, BMI 46kg/m<sup>2</sup>)

When health professionals, especially midwives, discussed the referral to the dietetics service, or endorsed the service, this positively influenced women's decisions to engage. However, Vicky described how her midwife and consultant had never mentioned her weight after the initial referral had been made which gave an inconsistent message about the importance of the service. Women also felt they had to wait a long time between the referral and the appointment, describing the delay as frustrating and unacceptable after being told about the risks associated with their weight. Some women described feeling "singled out" and stressed the importance of ensuring women know they are not alone. Some women identified that they were uncomfortable or paranoid about being "seen as being fat" or judged as being a bad parent.

"I was embarrassed because my midwife said that she was going to refer us here for consultant led because my BMI was 33... I was embarrassed at the fact that members of staff would see my weight and what my BMI was" (Maggie, Parity 2, BMI 34kg/m<sup>2</sup>)

"I was wondering if like people might think that I wasn't bothered about the health of my baby, if I didn't go to the next appointment" (Amy, Parity 0, BMI 34kg/m<sup>2</sup>)

### Theme 3: Delivery of the service

The majority of women wanted more frequent contact with the dietitian to build a relationship and stay motivated. Women emphasised their good relationships and frequent contact with midwives as an opportunity for additional support and weight monitoring between appointments, or that their local GP practice could provide more support.



“I think eight weeks is a long time, especially pregnancy wise, it’s been four weeks already, it’ll be the best part of starting my last trimester by the time I know if I’m really on the right track and doing the right thing, to me that’s probably a bit late...I think it’s a bit frightening really... you just feel like yes you’ve got this information but other than eight weeks’ time or something you’re sort of on your own” (Laura, Parity 0, BMI 34kg/m<sup>2</sup>)

“Maybe your midwife could support you? Maybe that would be a better way to do it [monitor weight]. To see the dietitian and then have maybe more support from your midwife, because you see your midwife more often” (Melanie, Parity 1, BMI 51kg/m<sup>2</sup>)

Women had confidence and trust in the dietitians expertise to give advice in pregnancy. Perceiving the dietitian to be an expert made women feel that they could open up and talk about their weight and diets, that the formal process of being referred to a professional about their weight prompted them to change their diets, and was “like a wakeup call”.

“It is embarrassing and you don’t like just telling Tom, Dick and Harry what you eat, like ‘I stuffed my face today’, but seeing a professional some women open up to people like that, like I did you know” (Maggie, Parity 2, BMI 34kg/m<sup>2</sup>)

“I feel like it’s took her to tell us, because before I fell pregnant I had been to Weight Watchers and lost three and a half stone, like I knew from then what I had been doing wrong and things, but then I had to start eating again when you find out you’re pregnant, so like she put us back on track really. So it just took her to tell us that I need to do it and feel like I’ll follow it” (Julie, Parity 1, BMI 30kg/m<sup>2</sup>)

Women felt that it would be difficult for a service to meet all of their needs due to resource implications for the NHS, and busy workloads of the dietitians. Women presumed that there was a long waiting list and that this was why they could not have more frequent appointments. Women also tended to blame themselves when the service did not meet their expectations or needs, describing themselves as being different, “fussy eaters”, that they probably did not ask for the right information or may have given the dietitian the wrong information to work with.

“Maybe I’m not your average person...maybe I’m being very, very, very harsh because nobody has been offensive, nobody has been unpleasant and the referral is obviously part of the midwives job and the dietitian was nothing but nice, and she was full of facts and information. It just wasn’t anything new to me” (Vicky, Parity 0, BMI 32kg/m<sup>2</sup>)

Women discussed the benefits and disadvantages of group-based services in addition to the current one-to-one service. The main disadvantages related to perceptions that they, or other women, might find group sessions embarrassing. Philippa (Parity 1, BMI 32kg/m<sup>2</sup>) explained that she would not feel comfortable in a group environment, and women stressed the importance of maintaining some elements of one-to-one support. However, women also described how being part of a group would offer them protection, and that they would not feel as vulnerable or “picked on”. Peer support was a strong motivator for women wanting group sessions, comparing the potential for this type of service with commercial weight management groups, antenatal classes, and breastfeeding support groups which had helped them feel as though they were not alone. Laura (Parity 0, BMI 34kg/m<sup>2</sup>) described how she knew she was not the only person in her situation, but she was the only person that she knew.

“There’d be people in the same situation as you and, people tend to discuss things better in a social network than what they do with maybe a health professional. So I think you would probably benefit more from that than what you would just by talking to one dietitian. And then you could like share different stories and it would also be good because you’d be meeting other people who are pregnant, who are maybe at the same stage as you and things like that, so it would be all round beneficial really” (Amy, Parity 0, BMI 34kg/m<sup>2</sup>)

#### Theme 4: Content of the Service

This theme discusses women’s views on the type of advice that had been provided throughout the service, and barriers and facilitators to applying the advice to their behaviours. Women described how the dietitians had linked specific foods with their nutritional properties when explaining why they should be included in their diets. For example, women were told to eat dairy foods because of the calcium content, or meat because of the iron content. Some women identified that they had previously had very little knowledge about nutrition and healthy eating, and that attending the service had improved their understanding and they felt this could be applied beyond pregnancy.

“Probably learning more like, now I know more for my eating habits, but for the baby’s eating habits as well, because I didn’t realise before so, definitely getting information [has been useful]” (Debbie, Parity 0, BMI 32kg/m<sup>2</sup>)

However, some women felt that there was repetition of information, such as food safety information from their midwife, or from previous weight management experiences informing their knowledge about nutrition, healthy diets, and food groups. Some women appreciated the reinforcement of their knowledge by a health professional (expert) as it increased their confidence, whereas others considered this to be wasted time that could have been spent

discussing new pregnancy-specific information, such as linking diets to fetal development. Differences in existing levels of knowledge influenced how women responded to the type of information and advice provided by the dietitians. For example, when women discussed the advice on not “eating for two” some found this useful and recognised that this behaviour had contributed to excessive weight gain in previous pregnancies, whereas others found this advice patronising and unnecessary.

“I think that with pregnant people tapping into what specifically is useful for the baby at different stages would possibly be fascinating for them... ‘If you swap this for that actually that’s brilliant for the baby because the baby gets this nutrition which is really good for the development of the spinal cord. Or if you eat more of whatever it really helps brain development’” (Vicky, Parity 0, BMI 32kg/m<sup>2</sup>)

Written information was considered to be a useful resource to help women refer back to dietetic advice and apply it to their behaviours. For example, women found discussions about swapping unhealthy foods for healthier alternatives useful during consultations, but also wanted written information on healthier food swaps, nutrients that would be beneficial for the baby, recipes, ideas for healthy foods while “on the go” and meal plans. Women referred to the “eat well plate” leaflet and practical tips from the dietitians on reducing portions. Some women found this useful when planning meals, whereas others found it difficult to practically apply.

“[the eat well plate] that’s good because I can look at it and monitor from day to day...I’m looking at that when I’m doing my meals and saying well I’m having that, I’m having that, I’m having that, I need to more of this and...so it’s given me more awareness of what I should be eating portions wise and how big each portion should actually be, because my portion sizes were sometimes double or triple what the recommended portion should be”  
(Lisa, Parity 1, BMI 47kg/m<sup>2</sup>)

“[The eat well plate] said a small ball of X, frankly if I knew what a small ball was I wouldn’t have to go to a dietitian. If people are overweight because of portion control...they need visuals not small, medium or large, because if you knew what small, medium and large were you wouldn’t need to have the conversation about what a portion looks like”  
(Melanie, Parity 1, BMI 51kg/m<sup>2</sup>)

Women described how the dietitians asked them about their eating patterns in detail, and felt this was a positive experience as they were being recognised as individuals rather than the dietitian assuming their diet was unhealthy because of their weight. When women felt that the advice received was not tailored to their specific needs, this was a substantial barrier to

change. However, when women discussed advice that was tailored to their specific lifestyles this facilitated applying the advice directly to their behaviours. Having choice and control over changes was also important, as was setting realistic and achievable goals. Women wanted more personalised advice to manage situations that would lead to “failure”, such as inconsistent working patterns, and were struggling to try and manage these situations themselves.

“Being allowed to choose for myself the suggestions that have been made for me, whatever feels comfortable for me I think has been the biggest plus I think I don’t feel as if I’ve been forced into doing anything, and I’ve been allowed to make my own choices on what I eat and the way I eat it” (Jenny, Parity 1, BMI 48kg/m<sup>2</sup>)

Women described the information they had been given about optimum weight gain during pregnancy had varied depending on which speciality of health professional provided the information (including obstetricians, midwives and dietitians). Women reported being told that they should lose weight, maintain weight, or that they should gain up to two and a half stone. The conflicting advice was confusing.

“The first consultant that I saw originally said ‘well the aim for you in this pregnancy is for you to lose weight, because you don’t need all that weight on you, because the baby is going to get what it needs anyway’, but then there’s the dietitian saying ‘well no you’ve got to maintain your weight’...So just a bit conflicting information between the two...So I was just a bit like, well what do you want us to do?” (Lisa, Parity 1, BMI 47kg/m<sup>2</sup>)

Women described how having their weight monitored was a positive experience, it kept them “on track”, gave them a goal to work towards, motivated them to maintain healthy eating habits, it was a measure that they understood and related to, and encouraged continued engagement with the service. Women described how they wanted to be weighed more frequently than every eight weeks to monitor their progress and some were monitoring their own weight between appointments.

“You’re managing to check your weight, and it’s good in terms of they let you know how much you should have put on, how you haven’t, and like if you’re doing well or you’re not doing well” (Amy, Parity 0, BMI 34kg/m<sup>2</sup>)

Women had expected physical activity to be part of the service as it was “part and parcel” of weight management. Women questioned the type of physical activity that they could do safely and wanted more reassurance from health professionals before embarking on anything new. Women reported being told what they could not do rather than what they

could do, which left them with a “void of information”. Some women had received physical activity information from their midwives but felt this was minimal and restricted to swimming, “not overdoing it”, gentle exercise, or cutting down their exercise. The uncertainty about what they could safely do in pregnancy resulted in women reducing their activity levels. Women discussed the difficulties they had in finding or accessing existing services and wanted more information about local services. They felt that the dietetics service could provide that information, although this was primarily considered to be part of the midwives role.

“I just started doing a fitness regime and a diet just before I was pregnant so and then the midwife suggested I stop doing so much exercise because it’s bad if you haven’t always done that so that can affect your health more. So I haven’t really done anything sort of heavy exercise since I was pregnant... Just walking and general just housework and stuff like that, nothing really strenuous...[Previously] I was going to the gym about four times a week, for about two hours at a time” (Amy, Parity 0, BMI 34kg/m<sup>2</sup>).

“I know you can walk and things...I did go to the gym but obviously since I’ve been pregnant I haven’t so I don’t know whether I can still go to the gym and just do my normal things or I just don’t know really...I’ve just been going for walks. Just in case I’m not meant to be going to the gym and things” (Julie, Parity 1, BMI 30kg/m<sup>2</sup>)

## Discussion

Participants reported an overall positive experience of attending a dietetic service in pregnancy, identified aspects of the service they felt were particularly helpful and some areas for service improvement relating to referral, delivery and content of the service. Other studies have shown an overall positive experience of antenatal weight management support (Soltani et al., 2012; Fealy et al., 2014; Heslehurst et al., 2015). However, there were two women whose discussions were predominantly negative. These negative discussions stemmed from isolated events that occurred during the women’s antenatal care related to the weight management service (i.e. Vicky’s experience of relating to the provision of a leaflet on obesity risks without discussion, and Amy’s inaccurate weight feedback). These negative perspectives were not expressed by other women in the study, and were not represented in themes that emerged from the data. However, these experiences should not be ignored and lessons should be learnt from them to improve care and prevent negative emotional impact of weight management services in the future.

This study has identified important factors to be considered by maternity and dietetic departments when developing antenatal weight management services. Importantly, there needs to be a full explanation of the service by a health professional at the point of referral to encourage engagement, avoid unnecessary anxiety, and give women realistic expectations

about what the service involves. Explaining that the dietitians will support women to have a balanced and healthy diet rather than dieting for weight loss is especially important given that this misconception could result in women embarking upon extreme weight loss behaviours believing they are doing the right thing for their baby. This is a particular risk when services have lengthy delays between referral and appointments, and for women who do not engage with services and therefore do not have their expectations challenged; this represents a high proportion of women in some antenatal services (Heslehurst et al., 2011; Fealy et al., 2014). The lack of explanation at referral could be due, in part, to health professionals actively avoiding having the discussion. A recent systematic review identified complex barriers to health professionals communicating with women about their weight status, including barriers to broaching the topic and communication of risks (Heslehurst et al., 2014). Health professional's consistently reported feeling that women would respond negatively to obesity communication, would become anxious and worried about the risks, that these discussions could harm their relationship with women, and that it was easier to avoid these discussions in practice. Overcoming these challenges to health professionals practice are important to support the delivery and sustainability of antenatal weight management services; as this study has identified, when midwives endorsed the service, women were more likely to engage.

Health professionals should consider the different experience and knowledge women have when designing services and providing advice. NICE guidelines specifically state that women should be informed about pregnancy myths such as eating for two (NICE, 2010). While some women found this useful information, others felt it was patronising and reacted negatively to it therefore re-enforcing the need for tailored advice. When women received tailored advice they felt they were being treated as individuals, and alleviated feelings of stigma as health professionals were not assuming women had unhealthy diets. This is a particularly positive outcome of the service as feelings of stigma and presumptions about greed, intellect and laziness are reported to be negative experiences of antenatal care for women with obesity (Furber and McGowan, 2011; Mills et al., 2011; Mulherin et al., 2013) and is a prevalent discourse among health professionals (Schmied et al., 2011; Mulherin et al., 2013; Heslehurst et al., 2014). Tailoring advice and not making assumptions during weight management discussions is a practical example of how inviting women to discuss their diet can address stigma and provide women with a more positive experience. A tailored approach to weight management is known to be a more effective strategy than general advice and information giving, and is incorporated into NICE guidelines (NICE, 2010, 2015). Women in this study reported that when they received a tailored approach to help them address their dietary behaviours within the context of their personal circumstances, such as work patterns, then this enabled implementation of advice into behaviours. Weight management services in pregnancy also have a unique opportunity to further tailor support

due to women's interest in the influence of nutrients in foods on the developing fetus, as identified in our study and by others (Porteous et al., 2014; Knight-Agarwal et al., 2016).

While dietitian-led weight management services were positively received and women considered the dietitian to be the expert, this approach does not address women's needs for support with physical activity. Physical activity recommendations are included in antenatal guidelines (RCOGs, 2006; NICE, 2008, 2010), and physical activity positively impacts on some pregnancy outcomes, such as reduced birth weight (Thangaratinam et al., 2012). Recent intervention trials have successfully increased physical activity levels among obese pregnant women (Dodd et al., 2014; Poston et al., 2015). However, similar to the women in this study, others have identified a lack of advice and support with physical activity in pregnancy, and a particular concern around safety (Weir et al., 2010; Sui and Dodd, 2013; Padmanabhan et al., 2015), while receiving physical activity advice from health professionals is a key enabler to supporting physical activity (Sui and Dodd, 2013).

Women in this study considered weight monitoring to be motivational for their behaviour change and expressed a preference for more frequent weighing. This is contrary to current UK guidelines which do not recommend weight monitoring unless there is a clinical requirement to do so (NICE, 2010). There are differences in beliefs among health professionals about weight monitoring in the current evidence-base. Some suggest that routine weight monitoring would remove obesity stigma, provide an opportunity to initiate a discussion about weight, and that not weighing sends the message that weight is not important; whereas others feel that weighing places too much focus on weight targets, causes anxiety and may result in women adopting unhealthy restrictive behaviours (Heslehurst et al., 2014). Midwives have reported that providing the option of being weighed at routine visits gave women "a boost" when they had not put on much weight (Schmied et al., 2011). A positive impact on women's self-esteem was also reported by women with a BMI  $\geq 40$  kg/m<sup>2</sup> referred to a dietetic clinic, particularly when women felt they gained a satisfactory amount of weight and on receiving positive feedback from the health professionals (Heslehurst N et al., 2015). Similarly, women who were not eligible for the dietetic clinic felt weight monitoring was missing from their care (Heslehurst N et al., 2015). However, women have also reported that they were not asked if they wanted to be weighed, with no explanation why weight measurements were required, a lack of helpful feedback on the weight measurements, and described a range of feelings relating to being weighed including ambivalence, reassurance and anxiety (Warriner, 2000). Anxiety was most frequently expressed by women with a history of strict weight control and was heightened in the absence of feedback (Warriner, 2000). Differences between published research on women's perspectives of being weighed is challenging to interpret, and there is limited availability of in-depth studies. Women in this study were engaged with a service to address

their weight, and therefore they may have been more open to weight monitoring than the general antenatal population. However, a similarity among all studies on this topic appears to be the requirement for constructive feedback from health professionals on weight measurements, yet a lack of gestational weight gain guidelines in the UK contributes towards health professionals uncertainties about appropriate feedback (Heslehurst et al., 2014). Further in-depth research is required to explore weight monitoring among a wider antenatal population including women not engaged with antenatal weight management services, and exploring the communication about weight monitoring women have with health professionals.

Study strengths include the depth approach to interviews which allowed women to control the focus of the discussions, the continued collection of data until saturation of themes was apparent, and the independent analysis by two researchers with triangulation of coding. The study had a multi-disciplinary research team (including dietetics, nutrition, obstetrics, psychology, public health, and maternal and perinatal health), and a steering group (including midwives and dietitians). Limitations include the lack of ethnic diversity among study participants, and that all of the participants were engaged with the service. These limitations may limit interpretation of women's perspectives in this study to more diverse populations, especially hard to reach populations who do not engage with weight management referrals. However, the purpose of qualitative research is not generalisability and this provides an in-depth perspective of the experiences of women engaged with antenatal dietetics services which can be used to inform service development.

#### Conclusion:

Women who engaged with a dietitian-led antenatal weight management service reported an overall positive experience and believed that dietitians were the expert health professionals to support them. Women's perspectives can inform the development and delivery of weight management services, including the importance of in-person and detailed communication about weight management referrals; information provision about the aims of weight management during pregnancy and the content of services at the point of referral; tailoring advice specific to personal circumstances; women's interest in the nutritional benefits to fetal development; and the need for increased focus on physical activity. Although women felt weight monitoring was a positive element of the service and wanted increased monitoring, further research is required to thoroughly explore the costs and benefits of this being routine practice given the limited and conflicting evidence-base.

#### Funding sources

Funding: This work was supported by the XX University Research Fund (grant number



## References

- Brynhildsen, J., Sydsjo, A., Norinder, E., Ekholm Selling, K. and Sydsjo, G. (2006) 'Trends in body mass index during early pregnancy in Swedish women 1978–2001', *Public Health*, 120, pp. 393–399.
- Burnard, P., Gill, P., Stewart, K., Treasure, E. and Chadwick, B. (2008) 'Analysing and presenting qualitative data', *British Dental Journal*, 204(8), pp. 429–432.
- CMACE-RCOG (2010) *Management of Women with Obesity in Pregnancy*. London.
- Dodd, J.M., Cramp, C., Sui, Z., Yelland, L.N., Deussen, A.R., Grivell, R.M., Moran, L.J., Crowther, C.A., Turnbull, D., McPhee, A.J., Wittert, G., Owens, J.A. and Robinson, J.S. (2014) 'The effects of antenatal dietary and lifestyle advice for women who are overweight or obese on maternal diet and physical activity: the LIMIT randomised trial', *BMC Medicine*, 12, pp. 161–161.
- Fealy, S., Hure, A., Browne, G. and Prince, C. (2014) 'Developing a clinical care pathway for obese pregnant women: A quality improvement project', *Women and Birth*, 27(4), pp. e67–e71.
- Fisher, S.C., Kim, S.Y., Sharma, A.J., Rochat, R. and Morrow, B. (2013) 'Is obesity still increasing among pregnant women? Prepregnancy obesity trends in 20 states, 2003–2009', *Preventive Medicine*, 56(6), pp. 372–378.
- Furber, C.M. and McGowan, L. (2011) 'A qualitative study of the experiences of women who are obese and pregnant in the UK', *Midwifery*, 27, pp. 437–444.
- Heslehurst, N., Dinsdale, S., Sedgewick, G., Simpson, H., Sen, S., Summerbell, C.D. and Rankin, J. (2015) 'An Evaluation of the Implementation of Maternal Obesity Pathways of Care: a Mixed Methods Study with Data Integration', *PLoS ONE* 10(5), p. e0127122.
- Heslehurst, N., Moore, H., Rankin, J., Ells, L.J., Wilkinson, J.R. and Summerbell, C.D. (2011) 'How can maternity services be developed to effectively address maternal obesity? A qualitative study.', *Midwifery*, 27(5), pp. e170–e177
- Heslehurst, N., Newham, J., Maniopoulos, G., Fleetwood, C., Robalino, S. and Rankin, J. (2014) 'Implementation of pregnancy weight management and obesity guidelines: a meta-synthesis of healthcare professionals' barriers and facilitators using the Theoretical Domains Framework', *Obesity Reviews*, 15, pp. 462–486.
- Heslehurst, N., Rankin, J., Wilkinson, J.R. and Summerbell, C.D. (2010) 'A Nationally Representative Study of Maternal Obesity in England, UK: Trends in Incidence and Demographic Inequalities in 619 323 Births, 1989–2007', *International Journal of Obesity*, 34, pp. 420–428.
- Heslehurst, N., Russell, S., Brandon, H., Johnston, C., Summerbell, C. and Rankin, J. (2015) 'Women's perspectives are required to inform the development of maternal obesity services: a qualitative study of obese pregnant women's experiences', *Health Expectations*, 18, pp. 969–981.
- Heslehurst, N., Sattar, N., Rajasingam, D., Wilkinson, J., Summerbell, C.D. and Rankin, J. (2012) 'Existing maternal obesity guidelines may increase inequalities between ethnic groups: a national epidemiological study of 502,474 births in England', *BMC Pregnancy & Childbirth*, 12(156).
- Heslehurst, N., Simpson, H., Ells, L.J., Rankin, J., Wilkinson, J., Lang, R., Brown, T.J. and Summerbell, C.D. (2008) 'The impact of maternal BMI status on pregnancy outcomes with immediate short-term obstetric resource implications: a meta-analysis', *Obesity Reviews*, 9, pp. 635–683.

- Knight-Agarwal, C.R., Williams, L.T., Davis, D., Davey, R., Shepherd, R., Downing, A. and Lawson, K. (2016) 'The perspectives of obese women receiving antenatal care: A qualitative study of women's experiences', *Women and Birth*, 29(2), pp. 189-195.
- Lutsiv, O., Mah, J., Beyene, J. and McDonald, S.D. (2015) 'The effects of morbid obesity on maternal and neonatal health outcomes: a systematic review and meta-analyses', *Obesity Reviews*, 16(7), pp. 531-546.
- Mills, A., Schmied, V.A. and Dahlen, H.G. (2011) "'Get alongside us', women's experiences of being overweight and pregnant in Sydney, Australia", *Maternal and Child Nutrition*, DOI: 10.1111/j.1740-8709.2011.00386.x.
- Mulherin, K., Miller, Y.D., Barlow, F.K., Diedrichs, P.C. and Thompson, R. (2013) 'Weight stigma in maternity care: women's experiences and care providers' attitudes', *BMC Pregnancy & Childbirth*, 13(1), pp. 1-13.
- National Institute for Health and Care Excellence (2008 (last updated November 2014)) *Public Health Guidance 11: Maternal and Child Nutrition*. London: NICE.
- National Institute for Health and Care Excellence (2015) *Clinical Guideline 43 - Obesity: Guidance on the prevention of overweight and obesity in adults and children*. London: NICE.
- National Institute for Health and Clinical Excellence (2010) *Weight Management Before, During and After Pregnancy*. London: NICE.
- Padmanabhan, U., Summerbell, C.D. and Heslehurst, N. (2015) 'A qualitative study exploring pregnant women's weight-related attitudes and beliefs in UK: the BLOOM study', *BMC Pregnancy & Childbirth*, 15, pp. 99-99.
- Porteous, H.E., Palmer, M.A. and Wilkinson, S.A. (2014) 'Informing maternity service development by surveying new mothers about preferences for nutrition education during their pregnancy in an area of social disadvantage', *Women and Birth*, 27(3), pp. 196-201.
- Poston, L., Bell, R., Croker, H., Flynn, A.C., Godfrey, K.M., Goff, L., Hayes, L., Khazaezadeh, N., Nelson, S.M., Oteng-Ntim, E., Pasupathy, D., Patel, N., Robson, S.C., Sandall, J., Sanders, T.A.B., Sattar, N., Seed, P.T., Wardle, J., Whitworth, M.K. and Briley, A.L. (2015) 'Effect of a behavioural intervention in obese pregnant women (the UPBEAT study): a multicentre, randomised controlled trial', *The Lancet Diabetes & Endocrinology*, 3(10), pp. 767-777.
- Ray, J.G., Nisenbaum, R., Singh, G., Meier, C., Guerin, A., Wyatt, P.R. and Vermeulen, M.J. (2007) 'Trends in Obesity in Pregnancy', *Epidemiology*, 18(2), pp. 280-281  
10.1097/01.ede.0000254686.01126.7e.
- Royal College of Obstetricians and Gynaecologists (2006) *Statement No. 4: Exercise in Pregnancy*. London.
- Schmied, V.A., Duff, M., Dahlen, H.G., Mills, A.E. and Kolt, G.S. (2011) "'Not Waving but Drowning': A Study of the Experiences and Concerns of Midwives and Other Health Professionals Caring for Obese Childbearing Women", *Midwifery*, 27(4), pp. 424-30.
- Soltani, H., Furness, P.J., Arden, M.A., McSeveny, K., Garland, C., Sustar, H. and Dearden, A. (2012) 'Womens' and midwives' perspectives on the design of a text messaging support for maternal obesity services: an exploratory study', *Journal of Obesity*. vol. 2012, Article ID 835464, 10 pages.
- Stothard, K.J., Tennant, P.W.G., Bell, R. and Rankin, J. (2009) 'Maternal Overweight and Obesity and the Risk of Congenital Anomalies: A Systematic Review and Meta-analysis', *JAMA*, 301(6), pp. 636-650.
- Sui, Z. and Dodd, J.M. (2013) 'Exercise in obese pregnant women: positive impacts and current perceptions', *International Journal of Women's Health*, 5(1), pp. 389-398.
- Tennant, P.W.G., Rankin, J. and Bell, R. (2011) 'Maternal body mass index and the risk of fetal and infant death; a cohort study from the North of England', *Human Reproduction* 26(6), pp. 1501-1511.

Thangaratinam, S., Rogozińska, E., Jolly, K., Glinkowski, S., Roseboom, T., Tomlinson, J., Kunz, R., Mol, B., Coomarasamy, A. and Khan, K. (2012) 'Effects of interventions in pregnancy on maternal weight and obstetric outcomes: meta-analysis of randomised evidence', *British Medical Journal*, 344 p. e2088.

Warriner, S. (2000) 'Women's views on being weighed during pregnancy', *British Journal of Midwifery*, 8(10), pp. 620-623.

Weir, Z., Bush, J., Robson, S.C., McParlin, C., Rankin, J. and Bell, R. (2010) 'Physical activity in pregnancy: a qualitative study of the beliefs of overweight and obese pregnant women', *BMC Pregnancy & Childbirth*, 10(1), pp. 1-7.

### Acknowledgements

The authors would like to acknowledge the members of the wider steering group from the participating NHS Foundation Trust for their guidance and support with this research.

Steering group members included Andrea Barber (Public Health Midwife), Kate Griffin (Public Health Midwife), Helen Long (Registered Dietitian) and Claire Potter (Registered Dietitian).

Table 1: Participant Characteristics

Pseudonym	Parity	Ethnic Group	BMI (kg/m <sup>2</sup> )
Amy	0	White	34
Debbie	0	White	32
Janice	2	White	38
Jenny	1	White	48
Julie	1	White	30
Karen	1	White	49
Laura	0	White	34
Lisa	1	White	47
Lucy	0	White	30
Maggie	2	White	34
Melanie	1	White	51
Philippa	1	White	32
Tina	0	White	32
Valerie	0	White	46
Vicky	0	White	32