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## Abstract

### Aim

To identify characteristics of the services and support women want to enable them to eat healthily during pregnancy to make a potential future service acceptable to this population.

### Background

An unhealthy diet during pregnancy may have a significant influence on pregnancy outcome, either directly through nutrient deficiencies or indirectly through maternal weight gain. Many pregnant women in the UK gain too much weight in pregnancy, and this weight gain may lead to an increased risk of preeclampsia, gestational diabetes and having an obese child. Thus, there is a need for interventions aimed at improving healthy eating in pregnancy. It is crucial in developing successful interventions to understand how participation can be maximised by optimising intervention acceptability.

### Methods

Four focus groups were conducted; two with prenatal women (n=9) and two with postnatal women (n=14). Discussion focused on identifying relevant characteristics of a service targeting prenatal and postnatal women's eating to ensure that a future service was acceptable to the women.

### Findings

The participants' responses were clustered into three broad themes: (1) early information leading to routine formation of healthier eating habits, (2) the delivery of practical sessions to increase information and (3) health professionals providing support and signposting to services. The participants reported wanting a practical service held in a convenient location, preferably led by women who have been pregnant themselves. The participants also reported wanting to be offered this service in pregnancy to help them get into a routine before they gave birth. Several suggestions for how this service should be marketed were mentioned, including through midwives and the internet. This research provides practical information for how to design support for prenatal women to increase their knowledge and practical

skills regarding eating healthily during their pregnancy.

## Introduction

Healthy eating during pregnancy may have a significant influence on pregnancy outcome (Rogers and Emmett, 1998), either directly through nutrient deficiencies or indirectly through maternal weight gain (Laraia et al., 2007). A recent report from the UK found that almost 50% of women gain too much weight (as defined by the American Institute of Medicine Guidelines (Institute of Medicine, 2009)) in pregnancy (Crozier et al., 2010). Excessive weight gain is associated with postnatal weight retention (Walker, 2007), an increased risk of preeclampsia and delivering by caesarean section (Cedergren, 2006, Crane et al., 2009) and having an obese 4-year and 6-year old child (Crozier et al., 2010). Whilst there are no formal guidelines from the UK government regarding what constitutes appropriate weight gain in pregnancy, current National Institute for Health and Clinical Excellence (NICE) guidelines state that health professionals should advise pregnant women about healthy eating and refer them to suitable services (National Institute for Health and Clinical Excellence, 2010). Thus, interventions in the UK need to focus on improving healthy eating in pregnancy (Stuebe et al., 2009, National Institute for Health and Clinical Excellence, 2010, Laraia et al., 2007).

It is crucial when developing successful interventions to understand how participation can be maximised by optimising intervention acceptability (Carter-Edwards et al., 2009). Frameworks such as Intervention Mapping and the (British) Medical Research Council's 'Framework for design and evaluation of complex interventions to improve health' emphasise the need to survey potential recipients of an intervention regarding their preferences to optimise intervention acceptability (Bartholomew et al., 2006, Craig et al., 2008). To identify the most important characteristics of the services and support women want to help them eat healthily whilst pregnant is therefore key for intervention development. With this in mind, the current study explored what type of healthy eating services and support prenatal and postnatal women want. This study was part of a larger project which was commissioned and funded by a local government organisation with the goal of informing the development of future services that help women maintain a healthy weight in pregnancy. At the time of the

present research, there were no services that provided support regarding healthy eating for prenatal or postnatal women in this locality beyond the information women were provided with from their midwife and health visitor.

## Methods

### Participants

All participants were recruited from the same deprived area in the Midlands, England, where the participants lived. This area is ranked 108 out of the 326 (1 is the most deprived) Local Authority Districts in England and is thus in the top third of the most deprived Local Authority Districts in England (Warwickshire Observatory, 2011). All participants were recruited by their midwives or through the research team at three children's centres. At the children's centres, the research team ran the focus groups after different pre- or post-natal classes to make it easy for women to participate. This method of recruitment was used to ensure that both women who do and do not attend children's centres were included in the study. No record was kept of how many women were informed about the study, but chose not to participate. Hence, there is no information on response rates for this study. Due to the funders of this project insisting on complete anonymity for the participants, no data was formally collected regarding the women's parity, socioeconomic status, age or weight. Based on the researchers' observations and field notes, women differed in parity and weight status (healthy weight to obese), and were mostly white British and varied between 18 and approximately 30 years of age.

### Procedure

Focus groups were chosen for this study as they provide direct evidence regarding the similarities and differences of participants' views and experiences (Morgan, 1997) and were thus a suitable method to answer our research questions. Four semi-structured focus groups were conducted, two with prenatal women (n=9) and two with postnatal women (n=14). An experienced researcher moderated all focus groups with another researcher taking notes. Open-ended questions were used to stimulate discussion and probes were employed to address specific issues regarding what

support the women want regarding improving their healthy eating. The women were also asked about how and when this support should be offered to ensure that women were aware of and could participate in any support offered. All focus groups lasted between 30 and 60 minutes, and each participant was given a £10 voucher as a thank you. The findings reported in this study come from a large service evaluation project concerning existing services to help women to maintain a healthy weight in pregnancy and thus did not need NHS ethical approval. The study was approved by the researchers' University Ethics Committee and all participants gave consent to participate in the study and to have the focus groups tape-recorded.

### Data analysis

The focus groups were transcribed verbatim and thematic analysis was used to find repeated patterns of meaning across all data sets (see Braun and Clarke, 2006). Thematic analysis offers the researcher theoretical freedom to conduct an insightful analysis and in this case an inductive approach was used to allow the identified themes to stem from the data rather than the questions asked (Braun and Clarke, 2006). The data was analysed using the following steps; firstly, all transcripts were read once to enable the first author to become familiar with the data. Secondly, the transcripts were read again and initial themes were identified. Thirdly, the themes were refined by comparing the text included and excluded in each theme, before the essence of each theme was identified (Braun and Clarke, 2006). The lead author analysed all transcripts with the second author reading the transcripts and reviewing all themes. All participants were given a unique participant code (prenatal women 1-9; postnatal women 10-23) and are described as prenatal or postnatal in the results section.

### Results

The participants' responses were clustered into three broad themes with two or three subthemes each. The first theme 'Early information leading to routine formation of healthier eating habits' is divided into subthemes 'Pregnancy is a time of change' and 'More time prenatally becomes less time postnatally'. The second theme 'The

delivery of practical sessions to increase information' is divided into 'Practical sessions to increase information', 'Local services delivered by mothers' and 'Alternatives regarding healthy eating support must be offered'. The third theme 'Health professionals providing support and signposting to services' is divided into 'Health professionals providing healthy eating support' and 'Health professionals in a signposting role'.

Early information leading to routine formation of healthier eating habits

Pregnancy is a time of change

When asked at what stage(s) the women wanted to be offered healthy eating support, both the prenatal and postnatal women reported wanting this service in pregnancy. The women stated that healthy eating was one of the behaviours that had to change and that they needed to learn more about how to eat healthily when pregnant. Further, the women reported that it would be good to start eating healthily in early pregnancy to help them get into a new eating routine before their baby arrived.

*It's also a lifestyle change as well isn't it? When you become pregnant there's so much that has to change, not just what you eat but everything you do, and the way you take care of yourself so it just falls into the package of, I need to learn that. (P4, prenatal woman)*

*I think maybe if you'd started well from the beginning then you probably would have carried on, because you'd have got into more of a routine then with everything else that goes on. (P11, postnatal woman)*

More time prenatally becomes less time postnatally

The women also reported that they would have more time to eat more healthily and attend a service during pregnancy compared to after birth. It was acknowledged that eating healthily becomes more difficult postnatally when taking care of their baby will take up most of the women's time.

*When these have arrived you haven't got a chance of picking something new up at that point. (P10, postnatal woman)*

*... I had the time then, when I was off on maternity, you've got all the time in the world haven't you? So you eat a bit better. It just goes downhill when you have them. (P23, postnatal woman)*

The delivery of practical sessions to increase information

Practical sessions to increase information

When asked about the type of service and support, the women reported wanting practical sessions where they can be shown how to improve their diet and how to cook healthy food. This type of support was preferred over receiving leaflets describing how to cook healthy food.

*I think practical makes more sense, if you're given a leaflet you just go and pile up leaflets in a big box. (P10, postnatal woman)*

*A bit like when you was at school, you were taught how to cook. (P11, postnatal woman)*

*Somebody to come in and say, you can make this, this and this, really easy. (P23, postnatal woman)*

Local services delivered by mothers

The women also reported wanting these practical sessions to be run by women who had experienced pregnancy and had children and who could show the participants how to cook inexpensive and quick healthy food.

*Maybe mums in the same sort of situation, who could show you how to throw something together that's healthy, that isn't really expensive and that takes 15-20 minutes, and it's realistic, something that's realistic. (P22, postnatal woman)*

Further, the women stated that these sessions need to be held in convenient locations, that offered child care services.

*I think as well you've got to make sure it's like a local place like the health centre, because if people have got to go to the hospital and haven't got a car, then people that are not really that bothered are just going to use it as an excuse not to go. (P8, prenatal woman)*

*Somewhere you can have a crèche. (P12, postnatal woman)*

Alternatives regarding healthy eating support must be offered

When asked whether the women wanted individual or group sessions, the women reported wanting group sessions. However, it was acknowledged that it would be best if a choice was offered as some women may only want more information regarding healthy eating without having to participate in a group session.

*I think group-based is quite good. (P23, postnatal woman)*

*You could give people the option couldn't you? If there was enough people to get together for a group session, then. But some people don't like to, they just prefer to pick up an information pack and read it at their own convenience so, depends on each to the person. (P7, prenatal woman)*

Health professionals providing support and signposting to services

Health professionals providing healthy eating support

In addition to practical group sessions, the women stated that they would welcome additional support regarding their eating from their midwife or other health professionals. This support would help the women remember to eat more healthily.

*I do think if they focussed a little bit more on it [healthy eating] in the midwife meetings, I know that they're only really short but if they just gave you a rundown of*

*almost, “OK, what have you been eating?” it kind of puts you on the spot, oh I’ve eaten this this week, and then you think. (P4, prenatal woman)*

*I think the health visitor should be a bit more helpful, I mean, you go and get your baby weighed and that’s it, in, weighed, out. That’s all it is. You try and talk and it’s like, haven’t got time to talk ‘cos there’s too many babies in the waiting room. (P11, postnatal woman)*

Health professionals in a signposting role

Women reported that a healthy eating service could be effectively advertised through their midwife or local health centres. It was acknowledged that most women listen and do as their midwife recommends.

*And if it’s something perhaps your midwife recommended, you always listen to what your midwife says so, if they recommend, there’s a class that’ll tell you about so and so, even if you don’t go for seven weeks in a row or whatever, and you just go for one class, at least you’ve got a bit more understanding. And everyone when they’re pregnant, I presume the majority, you go to your midwife, so that’s going to reach most people. (P4, prenatal woman)*

*Maybe at your health centre. Do things like that, advertise for group sessions and see what people, give people more information about things that they can do. (P7, prenatal woman)*

It was also suggested that a local government website could market local services, similarly to other commercial companies’ websites.

*...Tesco, Huggies, Boots, you name it, they’ve all got websites for parents or newbie parents, why hasn’t the [local] government website got one? That you could click on a link and it could have everything on there, and they tell you sessions. (P1, prenatal woman)*

## Discussion

The women in this study wanted support regarding what constitutes healthy eating in pregnancy. Pregnancy was seen by the participants as a time when women had time to change their behaviour and that improving their diet was part of the lifestyle change that is associated with pregnancy. They further suggested this support should take the shape of practical group sessions where they could learn more about healthy eating and should be held in a convenient location where a crèche is available. Further, these sessions should be run by women who are or have been pregnant and be advertised at health centres, on the internet and by midwives.

There have been several calls for interventions targeting prenatal women's healthy eating (Laraia et al., 2007, Derbyshire et al., 2009, Stuebe et al., 2009). Thus, this research is an important addition to the current literature in identifying factors that increase acceptability of a service to the target population and is in line with frameworks on how to design public health interventions (Bartholomew et al., 2006, Campbell et al., 2000). An additional strength of this paper is that both prenatal and postnatal women participated in this study; the postnatal women provided retrospective accounts of their views regarding support on healthy eating during pregnancy and their current views after giving birth whilst the prenatal women shared their current views. Crucially, both participant groups agreed on the characteristics of a potential healthy eating service, with the prenatal women anticipating being too busy postnatally to attend a service and the postnatal women confirming this belief by stating how little time they had due to having to take care of their baby.

There are several important practical implications based on the current findings, including that women want a healthy eating service in pregnancy to help them get into a routine before they have their baby. Services available at this time would benefit from women being motivated to change their behaviour to ensure they do what is best for their baby (Phelan, 2010). This supports past findings which has shown that women are more motivated to maintain a healthy weight during pregnancy if it benefits their baby (Olander et al., 2011). In line with previous research, the postnatal

women reported not having time to attend a service after giving birth (Carter-Edwards et al., 2009, Hampson et al., 2009). Thus a service that is offered to pregnant women needs to provide them with knowledge on healthy eating post-partum, when calcium, magnesium and vitamin D intake is especially important (Derbyshire et al., 2009).

Another implication from this study is that information about healthy eating in pregnancy in the form of leaflets is unlikely to be enough for most women in terms of changing their eating behaviour. However, it was acknowledged that some women want only information and hence there is a need for booklets with information on healthy eating in pregnancy and the postnatal period to be available. Nevertheless, the participants in this study generally wanted practical sessions to develop the skills to prepare and cook healthy inexpensive meals, all whilst being supervised by a pregnant woman or a mother. Importantly, the women must perceive what they learn as something that is realistic for them to do when at home. Furthermore, women wanted this service to be offered locally, with a crèche available for those women with children. A lack of local services is an often reported barrier for pregnant women (as well as other population groups) and the provision of more local services targeting healthy behaviour in pregnancy has been recommended by NICE (Derbyshire, 2008, National Institute for Health and Clinical Excellence, 2010).

In addition, the women interviewed wanted this practical support in a group session where they can interact with other women similar to them. This finding may be a consequence of participants being partly recruited from prenatal and postnatal classes. However, this also supports previous research where women have reported wanting to participate in group-based exercise classes specifically designed for pregnant women (Atkinson et al, in review). Further, sessions in a group environment are likely to facilitate social support (Hampson et al., 2009) and could help women form social networks which in turn may encourage healthier behaviour (Carter-Edwards et al., 2009).

Another implication resulting from the present findings is that the women also wanted more support regarding healthy eating from their health professional, thus the importance of healthy eating in pregnancy must be highlighted by midwives and other

health professionals (Derbyshire, 2008, National Institute for Health and Clinical Excellence, 2010). Moreover, the advertising of prenatal and postnatal services, regardless of what behaviour the service targets, must be improved. The women in the current study wanted more information from health professionals and information on the internet regarding available support. Thus agencies providing services for pregnant and postnatal women need to ensure that they have an internet presence in terms of information readily available and that service users and health professionals are aware of this webpage. This information also needs to be made available to and advertised at health centres and by midwives and health visitors so that they can share it with pregnant and postnatal women.

Limitations of this research include not being able to attribute findings to specific sub-groups of pregnant women. For example, UK research shows that women with higher pre-pregnancy BMI report lower intakes of nutrients during early pregnancy (Derbyshire et al., 2006), thus future research should take into account women's weight when exploring what type of healthy eating support they want and need. In addition, a limitation of recruiting through children's centres is that we do not know how many women knew about the focus group but chose not to participate. Hence, there is no information on response rates for this study. However, as participants self-selected to participate in the focus groups their views may not be representative of the wider population of eligible women and thus future research needs to establish how representative these views are. Further, more research is needed to establish the focus for the practical sessions the participants wanted. From this study it is clear that women want to prepare inexpensive meals quickly, whilst past research suggests that women should be educated regarding how to read nutrition labels (Hampson et al., 2009) and the importance of calcium-rich diets (Derbyshire, 2008).

In sum, it is imperative that relevant intervention components are identified with the help of the target population before interventions are designed and implemented (Campbell et al., 2000, Bartholomew et al., 2006). Through conducting focus groups with both prenatal and postnatal women, this study has identified several important characteristics for future services providing healthy eating support for pregnant women. These include group sessions of a practical nature at a convenient location

with a crèche, and advertised through health professionals and the internet. It is suggested future services incorporate these aspects to maximise the acceptability of the service to the target population to ensure service success.

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