

Maternal experiences of peanut avoidance during pregnancy/lactation: An in-depth qualitative study

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In 1998 the Department of Health Committee on Toxicity of Chemicals in Food, Consumer Products and the Environment issued a report to British general practitioners, which advised that pregnant mothers with a family history of atopy may wish to avoid peanuts during pregnancy/lactation. To explore the lived-in experience of mothers who avoided/did not avoid peanuts during pregnancy/lactation in the light of the information issued. A qualitative approach, using unstructured in-depth interviews to explore what it was like for mothers to have a particular experience. A purposive sample frame was designed to ensure a maximum variation of participants. Forty-two interviews were conducted: 25 participants avoided peanuts; 15 with a family history of atopy and 10 with no such history. Seventeen participants did not avoid peanuts; 10 with a family history of atopy and seven with no such history. Emergent themes included: variations in information provision, a lack of clarity in relation to information and advice about peanut avoidance, the risks entailed and the introduction of peanuts to the developing child's diet; the importance of atopy in influencing participants' decisions to avoid peanuts and the importance of individual's choice in the decision making process.

There was a significant difference in family size with respect to avoidance behaviour with 'avoider' families being smaller ($p = 0.007$). Avoidance was more likely in single child families (71% vs. 53%) although this difference was not significant. Improvements to the experience of avoidance and/or non-avoidance were primarily focused around provision of information and advice. In particular, a need for clear, consistent factual information and advice about the real risks associated with peanut consumption during pregnancy/lactation, and to whom these risks apply.

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Peanut allergy is often associated with severe symptoms and is potentially life-threatening (1). There is some evidence which suggests that *in utero* exposure to peanut and/or exposure during lactation can trigger sensitization, in particular where there is a family history of atopy (2). In 1998 the Committee on Toxicity of Chemicals in Food, Consumer Products and the Environment (COT) issued precautionary advice that 'pregnant or breast-feeding women who are themselves atopic, or where another first-degree

relative of the child is atopic, may wish to avoid eating peanuts and peanut products during pregnancy and lactation' (3, 4). Since then a critical review of existing literature by a panel of experts (5) clearly concluded that there was no conclusive evidence for a protective effect of maternal exclusion diet during pregnancy or lactation and that there are no controlled studies, which have as yet determined the role of peanut avoidance in the prevention of allergic disease. None of the existing studies in this area have

explored the maternal experiences of food avoidance or indeed the concordance with the intervention diets.

The COT recommendations have not changed and it is unclear at present how they have been interpreted and implemented by pregnant and lactating women and what impact, if any, this has had on family life. The evidence for this can only be generated by an in-depth qualitative research. This type of research, rooted in social science and philosophy, is now increasingly recognized by expert allergists as a valid and credible approach (6).

The aim of this qualitative study was to describe the experiences of mothers who had avoided peanuts during pregnancy and lactation. In particular, to explore:

- The reasons for avoiding peanuts/eating peanuts
- The sources of information and support
- The ease of avoidance/non-avoidance
- The impact avoidance/non-avoidance had on mothers' everyday lives.

Method

A phenomenological approach to the study was taken in order to explore, describe and interpret the lived-in experiences of mothers who either avoided or ate peanuts during pregnancy/lactation. Phenomenology has its roots in philosophical theory and focuses on the question 'What is it like to have a certain experience' (7).

In-depth interviews were conducted by a social scientist on a one-to-one basis. These took place in the mothers' homes, although all participants were offered the opportunity to choose an alternative location if preferred. All interviews were audio taped.

Sampling and selection

The sample was drawn from a whole population birth cohort study, which is concerned with establishing the prevalence of food allergy amongst children (8). Expectant mothers were asked to complete a questionnaire regarding the family history of allergic diseases. They completed a food frequency questionnaire, at 36 wk gestation regarding eating habits during pregnancy, which included questions regarding peanut avoidance during pregnancy. The food frequency questionnaire used was developed in house for the purpose of the prevalence study and was not validated at the time of this study.

The mothers who chose to breastfeed, for whatever duration, were also asked regarding avoidance of food during lactation and the reasons for this. A total of 937 recruited mothers completed the food frequency questionnaires and 445 (47%) reported that they had avoided peanuts during pregnancy/lactation. A purposive sample frame was designed (9). A purposeful sampling selects information-rich cases for qualitative studies. Size and specific cases depend on the study purpose.

The interviews were unstructured in that there were no predetermined questions asked and the discussion did not evolve in any particular format. However, there were clear research aims, which the researcher needed to keep in mind while conducting the interviews. The researcher tackled this by drawing up an interview schedule which covered the areas which were thought might arise during interview. The researcher memorized this information and the schedule was not taken to the interview. All interviews started in a similar way, by asking why they avoided/did not avoid peanuts. This would entail the participant recalling events of up to 2 yr ago. Most participants recalled the events relating to their decision to avoid or eat peanuts and the interview would develop from the initial recall. The researcher probed where necessary, in particular for influences and effects, as well as for any improvements which could have been made to the process of avoidance/non-avoidance. The length of time interviews took ranged from 20 min to 1 h 45 min. Field notes and researcher thoughts were noted where necessary immediately after interviews were completed. As themes emerged from the interviews conducted, these were introduced where appropriate in following interviews.

Sample size

Deciding on a sample size for qualitative inquiry is difficult because there are no rules to be followed and no statistical ways of calculating it prior to undertaking the research (10). It largely depends on the purpose of the inquiry, what will be useful, what will have credibility and what can be done with available time and resources. One can choose to study one specific phenomenon in-depth with a very small sample size or a bigger sample size when seeking breadth. The validity, meaningfulness, and insights generated from qualitative inquiry have more to do with the information-richness of the cases selected and the observational/analytical capabilities of the researcher than with sample size. Data collection

stops when data saturation is reached and no new information is generated.

Our strategy with the purposive sampling method used was 'maximum variation' aiming to capture the central themes that cut across participant variations. The size of the sample in this study was shaped by the focus of the research questions and included a sampling frame with categories such as atopic history; types of diet followed (normal, vegetarian, vegan); socio-economic factors etc.

In this study, data collection ceased after 42 interviews had been conducted as data saturation had occurred. Data saturation occurs when the researcher is able to recognize themes in the data, and decides whether the next few data samples fit into these themes or that no new information is generated. At this point the data is saturated and data collection is complete. The main themes in this study were identified after the first 27 interviews. A further 10 interviews were conducted which elucidated some additional areas which fitted under the main themes. Five subsequent interviews did not yield any further information. Hence the last 15 interviews failed to elucidate any new information. Based upon a 95% one-sided confidence interval we can assert that the probability that a new participant will fail to add further information is at least 0.82 (82%).

Data analysis

Tapes were anonymously coded and transcribed verbatim. Copies of transcripts were returned to respondents for their comments as to whether they thought the transcripts represented a record of the discussion as they recalled it. Data analysis was conducted using the principles of content analysis (11). The transcripts were saved onto NVivo 2 qualitative software package (QSR International Pty Ltd, Cardigan, UK), then open coded and analysis conducted by the researcher to reduce the data. Patterns and themes were initially identified, then links made between the data and the themes (7). These findings were verified with other members of the project throughout the research process. Ethical approval was obtained from the Isle of Wight, Portsmouth and SE Hampshire Local Research Ethics Committee.

Results

Participants

A total of 191 potential recruits (identified through the prevalence study database and

categorized according to stated criteria) were approached. These families were intensively followed up for the bigger prevalence study and we were acutely aware that additional involvement would not be enthusiastically received which is why such a large sampling frame was devised. A total of 42 participants took part in this study and data saturation was reached with this number. Seven mothers had moved away from the Island and could not be interviewed because of logistic reasons. All other mothers had replied and, as anticipated, indicated that the main reason for non-participation was lack of time and inconvenience caused by the time necessary for the interview. There was no difference between the participants and non-participants in terms of age range or socio-economic class. The characteristics of the participants are shown in Table 1.

Of the 42 interviews conducted 40 (95.2%) accurately recalled what was stated by them in the Food Frequency Questionnaire (CI 83.8–99.4%). A number of main themes emerged from the data collected. The definition of a main theme was that the topic raised was the subject of more than one interview and/or there was sufficient data generated to explore the topic in more detail. Where quotations are used they are intended to best illustrate the relevant theme.

The themes described here were chosen as they were considered to best illustrate the foci of the research aims and objectives. In addition they were the most frequent issues raised by the mothers.

Avoidance Issues

Avoidance tactics. These ranged from avoiding foods which obviously contained peanut, and foods which had peanut listed as an ingredient, to 'total avoidance' of all nuts. The most common model of avoidance was to avoid foods which obviously contained peanuts. Participants' awareness of food ingredients became more acute during pregnancy. This manifested itself in attempts to eat 'simple' foods comprising 'known' ingredients and home made foods. The consistent rationale for non-avoiders appeared to stem from the desire to 'carry on as normal' in relation to diet, in order for the unborn child to build up a resistance to potentially harmful substances:

'...I suppose it rolls over from a little bit of dirt does you good and I was brought up like that.' (Interview 24; atopic non-avoider)

Participants who had prior experience of childbirth were more inclined to feel that if

Table 1. Respondent characteristics

Respondent characteristics	Mothers who avoided peanuts		Mothers who did not avoid peanuts	
	25		17	
	Family history (FH) of atopy	No FH of atopy	Family history of atopy	No FH of atopy
Number of cases	15	10	9	8
Age of mothers interviewed				
Range	23–36	23–35	23–42	24–39
Mean	30.91	28.83	33.66	32.33
Maternal education (n)				
School	7	5	3	3
Further	4	4	5	4
Higher	4	1	1	1
Mean no. of children*	1.64		2.35	
No. of respondents with first children†	4	6	2	2

*Using analysis of variance there is a significant difference in family size with respect to avoidance behaviour ($p = 0.007$) with avoidance families being smaller. The factorial analysis of variance indicates no significant difference in average number of children per family between atopic and non-atopic families ($p = 0.079$). The difference in number children between avoiders and non-avoiders appears to be independent of atopic status (interaction $p = 0.39$).

†Classifying families as single child or not shows although avoidance is more likely in single child families (71% vs. 53%), the difference is not significant (Fisher's Exact test $p = 0.33$).

existing children were healthy and they had not avoided peanuts at that time, that adopting a similar approach again made sense. There were instances where mothers had eaten nuts before realising they were pregnant. In these cases participants were more likely to continue eating peanuts during pregnancy/lactation:

'I think with Rosie being the third one, before I found out I was pregnant, I think I had eaten some peanuts, and probably because it was the third one I thought I've done it now, not that I ate loads but just the odd ones aren't going to make a lot of difference I suppose.' (Interview 29; atopic non-avoider)

Ease of avoidance. Participants who were accustomed to avoiding peanuts because of an existing allergy made no changes in relation to grocery shopping and neither did non-avoiders on the whole, although most made an effort to 'cut down' on their peanut/nut intake. Participants who normally bought peanuts and peanut products had to find replacement foods. This was reported as initially taking more time than their usual shop, and in some instances may have involved spending slightly more money, however it did not appear to be an area of concern.

Despite avoiders' best intentions, the physical, psychological and emotional experience of pregnancy occasionally overrode the decision to follow a strict peanut avoidance diet. There were two cases where participants were hospitalized for prolonged periods during their pregnancies. In these situations consuming any types of food, was considered to be better than consuming

nothing. The hospital diets however did not include peanut.

Continuing avoidance. There were a range of views expressed about when peanut should be introduced into a child's diet. Amongst non-avoiders the focus was primarily avoidance of choking. For avoiders there was some concern that if peanuts were to be introduced to their child's diet this should be at the 'right' time. The ages suggested by participants for peanut introduction ranged from 'the first year' to 'not under the age of seven'. The most commonly suggested age to introduce peanuts to the child's diet was 3 yr old. Some participants had already introduced peanut at the time of interview, this was predominantly in the form of peanut butter and to a lesser degree, foods such as biscuits and cereals.

There were participants who felt that peanuts were not a particularly 'good' food and they had no intention of deliberately feeding their children peanuts. Vegetarians however, tended to view peanuts as a valuable source of protein.

Participants in the study placed considerable emphasis on the outcome of the skin prick tests for allergies, which were conducted as part of the wider study. Where participants' children had been skin prick tested and had a negative reaction there was a perception that the children were therefore not allergic to peanut and as a result mothers felt less concerned about peanut being given to their child without their knowledge. In exceptional instances, participants felt they were overly concerned with their child's

food intake with the result that they were cautious about allowing the children into any environment where they might eat something with peanut content. This was particularly the case with participants who had a family history of peanut allergy or other food allergy:

'Yes, I sat at the table watching her. It was terrible and for about an hour after I was watching where she was and what she was doing and things, it was scary. Then I thought this is a bit silly really, because if it is going to happen it's going to happen quick. It does with me, within a few minutes I know if I have got problems. I thought that was quite funny, I amused myself doing that because I was so worried.' (Interview 8; atopic avoider participant with food allergy to pineapple, blackcurrant and avocado)

Support and information for avoidance/non-avoidance. Participants were generally happy with the level of clinical support available. Where participants had received clinical support, it was primarily via midwives, as well as health visitors and general practitioners. Where avoiders had family members with peanut allergy, they had sought support from the local allergy clinic. Friends were also a source of support for some, particularly for first time mothers. Participants tended to see the decision to avoid or otherwise as a very 'personal' decision from whichever perspective they were coming to it:

'It's like all these things you take your information home and go and make your own decision.' (Interview 6; atopic avoider)

On the whole, there appeared to be a 'blanket approach' towards peanut avoidance advice from all sources. The underlying message was it was safer to avoid peanuts whether an atopic family history exists or not. However, participants' understanding of this advice and their ensuing behaviour varied greatly. Guidance in relation to lactation and food avoidance appeared to be very limited; the main focus of peanut avoidance was during pregnancy. There were two instances where participants had eaten peanuts during pregnancy and avoided peanuts during lactation, as this was their understanding of the advice given.

As well as medical sources of information and advice, magazines formed the major source of information for participants. The perceived benefit of the magazines was the up to date information:

'They (magazines) tend to keep you a bit more up to date than the doctors seem to, by the time the doctor finds out you have had the magazine and read it 2 months beforehand.' (Interview 42; atopic non-avoider)

Family history

A family history of atopy was an important theme in relation to the avoidance and non-avoidance question with avoiders showing a stronger propensity to have a family history of food allergy. Participants with a family history of food allergy tended to be accustomed to the process entailed in food avoidance, even if the food was not peanut. The concept of peanut avoidance represented an extension of their existing behaviour patterns:

'We read the ingredients on most of our shopping anyway because we have to avoid milk products, so I have to read through everything.' (Interview 11; atopic avoider with food allergic child)

There was a perception amongst non-avoiders in particular, that food allergy was a 'separate' issue from asthma, hay fever, and other non-food-related allergies. In some cases this resulted in a somewhat fatalistic approach towards avoidance: If a child was genetically programmed to develop asthma then nothing could be done to prevent this:

'Well I just assumed that if you ate peanuts your child was more likely to have skin complaints or asthma, but asthma runs in the family anyway, so the chances of her getting it were high.' (Interview 33; atopic non-avoider)

Danger

The perception of the peanut as 'dangerous' was widespread among participants. The perceived danger was twofold: firstly, avoiders believed eating peanuts during pregnancy/lactation could be a cause of atopy, in particular peanut allergy. Secondly, and more prevalent across both avoiders and non-avoiders, that once the child was born, peanuts represented a choking hazard.

Avoiders comprised more first time mothers than non-avoiders and the mean number of children in the families of avoiders was significantly less than that of avoiders ($p = 0.007$). There appeared to be a belief that avoiding peanuts during pregnancy/lactation would have a preventative effect in relation to the child developing a peanut allergy. This is supported by participants' descriptions of messages received via written information and verbal advice. Once the child had been born the concern remained as to if, or when, to introduce peanuts to the growing child:

'The first time he had anything with nuts on, he was quite tiny, at the finger food stage, he had a burger bap with nuts on it. It was just a

co-incident that on the way home he got a fever and was ill and of course I panicked, oh my God it was that tiny little seed that was on the bap.' (Interview 13; non-atopic avoider)

Participants who had successfully given birth to children in the past and not avoided peanuts tended to be less concerned about the dangers of peanut consumption than first time mothers:

'I have seen people absolutely panic if they have gone anywhere near a peanut and I just couldn't be bothered. If something terrible had happened with my first one then I probably would be more cautious but there isn't and she has had things like that and she has been alright that I haven't worried too much really.' (Interview 24; atopic non-avoider with one previous child)

Labelling

The 'may contain' labelling appeared to be a bit of a misnomer, as participants who were determined to avoid peanuts would tend to check the ingredients list if they had any doubt about peanut content; those participants wishing to avoid peanuts where possible either assumed there was no peanut content unless it was obvious, or again would check the ingredients list. It was suggested that a 'tick box' approach in relation to nut content might be clearer than the existing labelling:

'I wouldn't actually give them a meal that had actually got nuts in the ingredients on the meal, but if it said this product may contain nuts then yes I would give it to them, because I think to a certain extent they just write it on there to cover themselves a lot of the time.' (Interview 31; non-atopic avoider)

Peanuts or all nuts

There was a lack of clarity among participants about which nuts should be avoided and why. All avoiders reported that they avoided all nuts to some degree. Even amongst non-avoider participants there was an impression that too many nuts, particularly peanuts, may not be a good thing:

'Some of the books I read specified peanuts and some specified all nuts to avoid. I just swept the board and said like all nuts in my head and then I didn't have to worry about things then. I found that easier just to sort of ignore nuts as best I could.' (Interview 36; non-atopic avoider)

In addition, there was also a lack of clarity amongst participants about why peanuts should be avoided. There were three participants who were avoiding peanuts because they had peanut

allergic children. They each had varying degrees of understanding about the link between avoidance and allergy and all felt they should know more.

Finally, there was a lack of clarity about how peanut allergy could occur. There were participants who did not know, or could not recall, the reasons for peanut avoidance. A limited number of participants were content to know that there was a requirement to avoid peanuts if medical sources said so, and not require all the facts explaining why:

'I think you like to think you are doing the right thing... I mean they say don't eat pate and they can give you very good reasons why not, and certain things like don't eat raw eggs because it contains such and such. But when they say don't eat peanuts or avoid them and you say why, well there is a very slight possibility that it may be related to allergies in children but that's not proved. You have to think it's not proved, it's hard to avoid something when you are not sure if it's any benefit or not, so it would be nice to know that there was a bit more grounding for avoiding really.' (Interview 4; atopic avoider)

Discussion

The main findings revealed the importance of clarity with regard to the peanut avoidance issue. Important factors informing participants' decisions in relation to peanut avoidance included participants understanding of information and advice in relation to peanut allergy; the family history of food allergy; personal experience of food allergies; prior experience of childbirth; and individual sense of what constitutes a 'good' diet. Interestingly we found out that the mean number of children in 'avoider' families was significantly less than in 'non-avoider' families and that 'avoider' families were more likely to have a single child family.

The study revealed that it was important that any information regarding potential risks of peanut consumption during pregnancy/lactation should be relayed to participants who have existing children as there was a tendency for both health workers and participants to be of the opinion that 'they've done it all before'. This indicates that these participants may not have been aware of up to date medical advice regarding food avoidance. On the contrary the fact that second and third children in the family have lower risk of allergy is well established (12, 13) and although perhaps for the wrong reasons, it could be argued that parents are reacting appropriately.

The 'blanket approach', which appears to have been taken towards provision of information and advice about peanut avoidance, caused confusion among participants. Participants with both atopic and non-atopic family histories, felt they needed to be clear about the possible risks entailed in relation to their particular situation.

Clarification also appeared to be required regarding which foods should be avoided i.e. peanuts or all nuts and some guidance about which foods are likely to contain these substances.

To aid the avoidance process, both for mothers avoiding peanuts during pregnancy/lactation and for those with peanut allergy, clear standardized labelling of products outlining whether the product contains nuts or not would be useful. The 'may contain' labelling was a bit of a misnomer for both avoider 'types' as neither group felt it was a valuable source of guidance but rather a 'get out clause'.

In relation to continuing avoidance and introducing peanuts to a child's diet, again there appeared to be a requirement for clear, consistent information and advice about whether avoidance should continue during lactation and at what stage in the child's development peanuts can be introduced to the diet.

This study highlighted the maternal experience of peanut avoidance during pregnancy/lactation and identified key factors, which need to be considered when issuing advice, or designing intervention studies which focus on avoidance. The impact of avoidance on mothers' everyday lives comprised an increased awareness of dietary intake, changes in shopping, cooking and eating out habits.

The limitations of this study primarily relate to its qualitative and exploratory nature. As the participants in the study were not necessarily aware of the Chief Medical Officer advice, which was issued on peanut avoidance, the findings cannot reflect directly on this advice, but rather on the ways in which it was disseminated to pregnant and lactating mothers.

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References

1. SICHERER SH, FURLONG TJ, MUNOZ-FURLONG A, BURKS AW, SAMPSON HA. A voluntary registry for peanut and tree nut allergy: characteristics of the first 5149 registrants. *J Allergy Clin Immunol* 2001; 108: 128–32.
2. HOURIHANE JO, DEAN T P, WARNER JO. Peanut allergy in relation to heredity, maternal diet, and other atopic diseases: results of a questionnaire survey, skin prick testing, and food challenges. *BMJ* 1996; 313: 518–21.
3. Committee on Toxicity of Chemicals in Food, Consumer Products and the Environment. *Peanut Allergy*. London: Department of Health, 1998.
4. Department of Health. *Peanut Allergy. CMO's Update 19*. London: Department of Health, 1998.
5. MURARO A, DREBORG S, HALKEN S, et al. Dietary prevention of allergic diseases in infants and small children. Part III: Critical review of published peer-reviewed observational and interventional studies and final recommendations. *Pediatr Allergy Immunol* 2004; 15: 291–307.
6. WARNER JO. Quality versus quantity. *Pediatr Allergy Immunol* 2000; 11: 61.
7. CLIFFORD C. *Qualitative Research Methodology in Nursing and Healthcare*. 1st edn. Edinburgh: Churchill Livingstone 1997: 30–70.
8. DEAN T, VENTER C, PEREIRA B et al. Factors Associated With Avoidance of Peanuts and/or Other Nuts During Pregnancy and Lactation. *J Allergy Clin Immunol* 2004; 113 (Suppl. 2): 155.
9. COYNE IT. Sampling in qualitative research. Purposeful and theoretical sampling; merging or clear boundaries? *J Adv Nurs* 1997; 26: 623–30.
10. SANDELOWSKI M. Sample size in qualitative research. *Res Nurs Health* 1995; 18: 179–93.
11. WEBER RP. *Basic Content Analysis*. Beverly Hills, CA: Sage 1985.
12. MATRICARDI PM, FRANZINELLI F, FRANCO A, et al. Sibship size, birth order, and atopy in 11,371 Italian young men. *J Allergy Clin Immunol* 1998; 101(4 Pt 1): 439–44.
13. BODNER C, GODDEN D, SEATON A. Family size, childhood infections and atopic diseases. The Aberdeen WHEASE Group. *Thorax* 1998; 53: 28–32.