Introduction

The determination of risk in pregnancy is a complex process influenced by social and cultural factors (Chadwick and Foster 2014). These include family histories, childhood experiences, nationality, and experiences of healthcare, and combine over time to establish an assessment of risk (Coxon et al 2014). Women whose pregnancies are deemed medically high risk will also make assessments regarding how at risk they feel. How women with high-risk pregnancies perceive the risks they face affects their decisions during pregnancy and labour, and the extent to which they follow advice from healthcare professionals (Bayrampour et al 2012). Professionals caring for these women in contemporary Western society do so against a cultural background of increasing focus on the assessment and management of risk (Kringeland et al 2006). Pregnant women’s perception of risk is therefore of interest to all professionals involved in their care.

Evidence shows pregnant women and healthcare professionals do not define or assess risk in the same way. A recent systematic review (Lee et al 2012) found little association between the perception of risk by women and by healthcare professionals. It also found women with high-risk pregnancies do not rate their risks highly; on average just below the midpoint of linear scales. This work is supported by a metasynthesis of qualitative studies (Lee et al 2014) which showed women with high-risk pregnancies are committed to the wellbeing of their babies and will take whatever steps they believe will achieve this. However this may not involve following all recommended medical advice.

Where to give birth is a key decision for pregnant women. While homebirth is considered medically safe for women with low risk pregnancies (de Jonge et al 2009), some women with more complicated pregnancies will also choose homebirths, often going against medical advice to do so. Reasons given by women for choosing homebirths against medical advice include the beliefs that hospital is not safer than home and that higher medical
intervention rates in hospitals can increase childbirth risks (Jackson et al 2012). Healthcare professionals are likely therefore to provide care for women whose decisions reflect perceptions of risk different from their own.

Obstetricians have reported difficulties when communicating with women with high-risk pregnancies (Pozzo et al 2010). If women are reluctant to comply with medical advice, obstetricians may also be reluctant to discuss women’s choices due to fears about appearing to condone their decisions (Ecker and Minkoff 2011). Healthcare consultations in Western society also usually occur against a cultural background which typically regards professional interpretations of knowledge as more reliable and objective than lay perspectives (Browner and Press 1996). An increased understanding of how women with high-risk pregnancies perceive risk can therefore potentially improve communication with this group and facilitate understanding of their decision making.

The aim of this study was to investigate the perception of risk among a group of women with high-risk pregnancies. Half the women were planning to give birth in hospital and half were planning to give birth at home despite medical advice to the contrary. The intention was to consider differences and similarities between the groups to examine how perception of risk relates to choice of place of birth.

**Methods**

This was a qualitative study using semi-structured interviews to examine risk perception and decision making processes in women with high-risk pregnancies booked to give birth at home or in hospital. This paper reports the analysis and results of women’s perception of risk. Decision making regarding place of birth is reported elsewhere (Lee et al in press). Ethics approval for the study was obtained from the North Tyneside II Research
Ethics Committee. Recruitment took place between April 2012 and November 2013 in the obstetric department of an acute teaching hospital.

**Recruitment**

Women were eligible to participate if they were pregnant and had a medical or obstetric condition which meant their pregnancy was at higher risk. Conditions defined as high-risk included any that could potentially have an impact on the pregnancy and which required referral to an obstetrician. Interviews were conducted from 32 weeks of pregnancy onwards.

Information about the study was available to women in the hospital antenatal clinic. Women planning homebirths were told about the study by obstetricians and midwives. Their permission was sought to pass on their details to the first author who then contacted them in person or by telephone. Women planning to give birth in hospital were recruited by the first author attending antenatal clinics and approaching women directly. Written consent to participate was obtained from all women.

**Sample**

Seventeen women who were planning to give birth in hospital were approached to participate in the study and 14 women planning homebirths. Thirteen women from each group agreed to participate. Medical or obstetric conditions in women planning homebirths included diabetes (n=2), previous caesarean section (n=7), hypothyroidism (n=2), previous postpartum haemorrhage (n=1), and von Willebrand’s disease (n=1). Among women planning to give birth in hospital conditions included diabetes (n=3), previous caesarean (n=6), a cardiac condition (n=1), polycystic kidneys (n=1), osteoarthritis and hypermobility syndrome (n=1), and twin pregnancy (n=1). Medical conditions and parity were not matched across the groups as qualitative research reports specific, detailed interpretations of participant’s experiences rather than providing generalisable comparisons.
All participants completed a questionnaire regarding demographic status. Most participants were of White European ethnicity and were living with a partner. More women planning homebirths had finished education at degree level but more women planning to give birth in hospital had achieved higher degrees. The majority of women in both groups came from social class II. Full demographic data are shown in Table 1.

**Materials**

The interview schedule consisted of open-ended questions used to explore (i) women’s perceptions of the risks they were facing in the pregnancy and (ii) considerations when making decisions about place of birth. This paper reports the analysis and results on risk perception (see Table 2 for interview questions). The interviewer had the freedom to follow lines of enquiry introduced by women.

Interviews were carried out by the first author, an experienced midwife, under the supervision of the second author, a psychologist with experience of perinatal research. Women were aware the interviewer was connected with the hospital but were reassured about confidentiality and encouraged to be open about their thoughts and opinions on the care they had received there. Interviews were recorded then transcribed with all identifying data removed.

**Data analysis**

Systematic thematic analysis (Braun and Clarke 2006) was used to analyse the transcripts. The transcripts were read several times to ensure familiarity with the data and initial codes were identified. These were refined and organised into potential themes. Themes were reviewed in relation to the codes and the original data and finally named and defined. NVivo 10 was used to organise the codes and themes. Inter-rater reliability was checked across codes to maintain quality in the coding process.
Results

Five similar themes arose in both groups of women concerning perception of risk: understanding of situation; judgement of risk; reassuring factors; impact of risk; and coping with risk. Similarities or differences between the groups are discussed within each theme. Direct quotes supporting the themes are provided, coded (Home1-13 and Hospital1-13) to maintain anonymity.

**Understanding of situation**

This theme refers to women’s knowledge and understanding of the conditions which led to them being referred for obstetric care, followed by their understanding of risk.

*Understanding of condition-related risks*

All women knew why their pregnancies were labelled high-risk. Twenty-five women identified health risks associated with these conditions. Some risks were mentioned by women planning both home and hospital births. These included concern regarding the baby’s size and neonatal hypoglycaemia amongst diabetic women, and uterine rupture by women with previous caesareans. There was also uncertainty across both groups: women were unsure if risks applied to them: “this confuses me actually - risks of bigger babies but I’m not so sure if that’s just for gestational and type 2 [diabetes]. I’m not really sure how that affects type 1” (Hospital2). Some women found statistical information hard to understand: “I think I’ve heard stats of 0.5% chance of rupture and then I’ve heard one in two hundred. I don’t know whether that works out” (Home12).

All the diabetic women planning hospital births referred to an increased likelihood of caesarean section however no diabetic women planning homebirths mentioned this. Among women who had had previous caesarean sections, no-one planning a hospital birth mentioned the possible consequences of uterine rupture. The women planning homebirths did speak of the effects, although opinions varied as to how serious this could be.
Understanding of risk

Women who were aware of statistics about their risks reacted to these in different ways. Women planning homebirths more frequently discussed their understanding of the concept of risk. When they referred to statistics about their risk factors they described the risks as small. Statistics were therefore a source of reassurance: “I know there’s a .5% chance of tearing of the previous scar... felt like actually that was quite low as percentages go” (Home4). Women planning hospital births were less reassured by statistics and were still concerned that, however unlikely, they could affected by risks: “I know statistics are fine but you can be the one in whatever... you could still be that one person” (Hospital12). Women planning homebirths also felt it was important to contextualise risks to individual circumstances: “if someone was high-risk, we would look at why they were high-risk and whether or not it’s just a blanket thing that’s being used too freely to bundle women into hospital” (Home3). They preferred to focus on the potential for positive outcomes: “I felt there was a real emphasis in the letter of the risk of it happening versus the double percentage of positive outcome that it wouldn’t happen.” (Home6).

Judgement of risk

This theme refers to the degree of risk women perceived their conditions actually posed. The majority of women planning homebirths perceived themselves personally to be at little or no risk, likening their status to that of women with low risk pregnancies: “to me, I’m having a straightforward, normal delivery” (Home2). Some women said they believed themselves to be less at risk than the average for their peers: “If you were to start to separate out, of all the VBAC women, who’s gonna be slightly higher risk of rupture and who’s gonna be slightly lower risk of rupture, I’ve kind of managed to somehow reason with myself that I’m gonna be slightly lower risk” (Home12).
Results from women planning to give birth in hospital were more inconsistent regarding judgement of risk. Some did consider themselves to be high-risk but others stated they believed themselves personally to be at little or no increased risk. They displayed concern that risks could be compounded by the potential for increased intervention resulting from an obstetric condition. Previous birth experience did not appear to relate to judgement of risk in the current pregnancy as both parous and nulliparous women made risk assessments across the spectrum.

**Reassuring Factors**

Women planning homebirths more often referred to factors they used to reassure themselves.

*Obstetric history*

All women in the homebirth group had given birth before and referred to this reassure themselves things would go well. Women were reassured by the fact they had given birth vaginally before and, where applicable, that they had had previous successful homebirths. When problems had occurred at previous births, they emphasised these had not been serious: “[the midwife] said that I was bleeding too much, but I didn’t feel that I was bleeding too much. And I was right, I was fine” (Home1). A previous caesarean was not necessarily a source of concern if other aspects of the birth experience could provide reassurance: “my labour itself was actually very straightforward and quite quick and it was purely positional in the second stage that confirmed that he weren’t coming out” (Home3), or if the circumstances deemed to necessitate the caesarean, e.g. twin pregnancy, were not repeated.

Although six of the women planning to give birth in hospital also had experience of labour and birth, they were less inclined to rely to their experiences for reassurance in the current pregnancy: “I just think every pregnancy’s different so you can’t really know for certain that you’re all right” (Hospital5). One woman believed her healthcare team was
reassured by her obstetric history: “they’re not as worried about me this time cos I’ve already done it once” (Hospital10).

Maternity care

Women from both groups described aspects of maternity care as being reassuring. These included results of scans and blood tests and the attitude of healthcare professionals. Many women welcomed increased contact with professionals, seeing it as an opportunity to gain access to reassurance from additional tests and consultations: “I just feel really looked after, that if anything was gonna happen then they’d spot it.” (Hospital3).

Impact of risk

This theme refers to the impact the risks of the pregnancy had on the participants and how they felt about the risks they were facing.

More women planning homebirths than hospital births reported they did not believe the risks had had an impact on how they felt during pregnancy. However, even though the majority of women planning homebirths had said they felt at low personal risk some did describe the negative impact of concerns about risk on how they felt about the pregnancy. Concern ranged from a low level of worry to high anxiety. Women reacted to these concerns with determined positivity, acceptance or worry.

Women planning to give birth in hospital also displayed a range of reactions to their perceived risks, although more of this group described being affected by their concerns: “to be honest, I haven’t enjoyed being pregnant, I’ve found it quite stressful… there’s been quite a bit of worry involved” (Hospital2). These concerns were expressed by both parous and nulliparous women.

Women from both groups spoke of specific fears about the health of their babies, including fears the medical condition would affect the baby and fears of things going wrong
more generally with the birth. Women described prioritising their babies’ safety above their own in the face of risk to physical wellbeing.

Coping with risk

Women described psychological and practical strategies to help them cope with risks. 

Psychological strategies

Women planning homebirths spoke of confidence in their ability to intuitively sense if things were going well or not. This enabled them to feel confident problems would be identified in time to be dealt with: “I do feel like I know my body quite well and I think I wouldn’t suddenly just have a bleed and just die, I think I’d get some sort of warning” (Home2). They also mentioned trusting their bodies’ ability to give birth without intervention “my body’s been designed to do this, and if I work with my body then... it should be able to happen” (Home4). When risks were acknowledged, two broad strategies emerged for coping with them. Some women described accepting and acknowledging the risks while others mentioned trying not to dwell on them and instead attempting to keep a positive frame of mind about the pregnancy. This latter strategy was also used by women planning hospital births. Thinking about risk was seen as a source of distress: “I just try not to let it bother me cos the more I think about it the more it’s gonna bother me. So I’m just not thinking about the options at the moment” (Hospital8).

Women from both groups attempted to minimise the risks they were facing. Sometimes this was done by using humour. Women also pointed out that no birth was without some risk, even without medical complications, and that risk is impossible to avoid in everyday life: “bad things happen every day, people get run over going out their own front door” (Home9). Women planning homebirths pointed out that birth in hospital would not be risk free. Women from both groups thought their personal risks were lower than overall risk statistics for their conditions.
Practical strategies

Women from both groups frequently referred to the importance of diet, exercise and maintaining general wellbeing. Other than this, women planning homebirths described more practical strategies to help them cope with the impact of the risks and protect themselves from negative outcomes. Protective activities included the use of alternative treatments such as acupuncture or massage of caesarean section scars.

Women planning homebirths frequently mentioned the importance of relaxation as protecting against risk during labour. Relaxation was believed to increase the likelihood of a straightforward labour as it enhanced production of oxytocin. Being at home was seen as an important factor in promoting relaxation.

Fewer women planning hospital births referred to practical strategies for reducing risk other than maintaining general wellbeing. Following medical recommendations was seen as the best way to manage risk.

Discussion

The aim of this study was to examine risk perception in a group of women with high-risk pregnancies planning to give birth in hospital or at home. It identified five themes related to risk perception: understanding of situation, judgement of risk, reassuring factors, impact of risk, and coping with risk. This study extends understanding of how women perceive risk and how this contributes to deciding where to give birth. It shows there are similarities and differences in attitude toward risk between women who plan to give birth in hospital and those who plan homebirths.

The study showed many women with high-risk pregnancies are aware of the risks and assess and cope with these risks in various ways. Women from both groups displayed concern about the wellbeing of their babies. They also had some knowledge of the risks they
were facing although there were differences in perception of the implications of these risks. There were some differences in understanding of risk between the groups.

Women planning homebirths often assessed their risks as lower and expressed less concerns. This was true even amongst women who could name more risks. The women planning homebirths referred to more practical coping strategies. They also believed their self-protective strategies reduced their risks in comparison with other women. Women planning hospital births more frequently mentioned following professional advice as a risk-reducing strategy. Both groups mentioned maintaining a positive outlook as a coping strategy.

The results of the study are consistent with other work on high-risk homebirth showing women think carefully about risks and do not want to endanger themselves or their babies. Participants were aware of the risks posed by complications to pregnancy but how individuals perceive risk is influenced by a variety of subjective factors (Alaszewski and Horlick-Jones 2003; Jordan and Murphy 2009) and people attach different emphases to various aspects of perceived risks (Ward and Savelescu 2006). The women in the study who were planning homebirths perceived the risks they faced differently from those women planning to give birth in hospital and, presumably, from healthcare professionals who had advised them to give birth in hospital. Other studies have found pregnant women define risk differently from professionals (Bayrampour et al 20012; Regan and McElroy 2013), by including various lifestyle factors in their definitions. Nulliparous participants were all planning to give birth in hospital. Among the parous women, some were reassured by their previous experiences of childbirth and felt confident to plan homebirths. The women planning to give birth in hospital however, did not cite their previous experiences as reassuring. This suggests women may hold deeply entrenched views about childbirth which are not necessarily altered by experience (Regan and McElroy 2013)
Unrealistic optimism, a belief that one is at less risk than one’s peers of suffering a negative outcome (Weinstein 1982), is also characterised by a tendency to credit one’s own self-protective strategies as more effective than those of others (Fischhoff et al 1993). The women often cited a positive outlook as a coping strategy. Hope can be a source of emotional strength for women during high-risk pregnancy (Roscigno et al 2012). Women may become frustrated if positivity is confused with denial by healthcare professionals (Corbin 1987). Women may also avoid information from professionals if it is considered a threat to psychological equilibrium (Levy 1999). The women in the study who planned homebirths were in the main confident they would be able to achieve a natural birth. Those planning hospital births displayed a more ambiguous attitude. Other studies also suggest women who choose homebirths trust in the process of natural birth (Lindgren et al 2006; Viisainen 2001). Those who give birth in hospital are more likely to believe things may go wrong during the birth process (Regan and MeElroy 2013).

Both groups of women cited aspects of maternity care as a reassuring factor, including a positive attitude on the part of the professional. Women’s reactions to professional advice are not static but can move between welcoming advice and using it to validate experiential knowledge, and rejecting advice which is perceived as unhelpful or inappropriate to individual circumstances. Professional advice is also not necessarily prioritised over advice from other sources (Abel and Browner 1998). Amongst women planning homebirths, the use of contact with professionals as a source of support can be seen in contrast with their decision to disregard advice to give birth in hospital. While this may seem paradoxical, women may alternate between challenging and welcoming medical advice as they feel best meets their needs (Lupton 1997). This behaviour may also reflect a tendency to select information congenial to pre-existing beliefs and decisions (Hart et al 2009).
Professionals should remember for women, childbirth occurs in the context of their life setting and resist reducing the event to a collection of potential risk factors (Simmons and Goldberg 2011). They should also consider their own feelings and beliefs about risk and avoid giving information based on personal biases (MacKenzie-Bryers and van Teijlingen 2010). Such an approach can be the result of professional defensiveness compounded by a poor understanding of legal accountability (Kruske et al 2013). However by not engaging with women in ways which respect their perception of risk, professionals risk being excluded from discussions with women about their care (Ecker and Minkoff 2011). Safer outcomes are more likely to result when women and professionals can discuss risk perceptions together (Cannella et al 2013). Further research is required to investigate the subjective factors which influence professionals’ perception of risk.

Professionals should be aware of the potential for differences in definitions and perceptions of risk to enhance communication with women with high-risk pregnancies. Any discussion of risk should acknowledge the potential for different definitions in order to uncover women’s true thoughts on the subject and to make efficient use of professionals’ time (Cannella et al 2013). It is important to remember communication may be open to multiple interpretations and individuals will not always accurately assess others’ interpretations of interactions (Ratner 2002). Also, not all thoughts and feelings can be articulated (Randall and Phoenix 2009). Professionals should also consider that women may be maintaining a positive outlook as coping strategy and display sensitivity towards this when imparting information. Researchers have considered how women actively participate in conversations with healthcare professionals to ensure their concerns are addressed (Levy 1999; Viisainen 2001); future research should similarly address strategies used by healthcare professionals.
Data from this study regarding women’s perceptions of interactions with obstetricians and midwives are reported elsewhere (Lee et al in preparation) but indicate the women planning homebirths were less inclined to trust advice from obstetricians and more likely to seek out other sources of advice or trust their own judgement than women planning to give birth in hospital. Both groups of women described information which was evidence based and delivered in a way which acknowledged their concerns as more useful than advice which appeared to reflected clinicians personal biases.

Strengths of the study include the qualitative design. In order to ensure the depth of the data, women were able to raise any issues they felt had not been covered. Methodological rigor was ensured by use of established techniques for data collection and analysis; discussion of results between team members; checking reliability of coding with an external rater; and maintenance of ethical standards of consent. Theoretical connectedness (Burns 1989) was ensured by consistent use of direct quotes from data to support emerging themes. Heuristic relevance (Burns 1989) is demonstrated by the complementary relationship of the study to existing research and its applicability to practice.

Limitations include the fact that participants came from a single city and were all cared for in one hospital. The majority were white European and living with partners. Data on participants’ age was not collected. Women were aware the interviewer was connected with the hospital and therefore may have been reluctant to criticise care they received there. This was addressed by giving women the opportunity to decline to participate, to ask questions about the study, and providing transparency and assurance of confidentiality during the consent process. The interviewer was not involved in any participant’s care. In spite of these limitations, this study provides a rich insight into the way women perceive risk during high-risk pregnancies.

As all the women in the study were from similar backgrounds, further research is needed to examine how women from different backgrounds perceive risk during pregnancy.
Further research is also needed to establish how professionals communicate with women planning homebirths against medical advice, including whether they impart information differently to these women. Future studies should also consider the extent to which women’s risk perception is affected by communication with professionals.

References


Randall, W., Phoenix, C., 2009. The problem with truth in qualitative interviews: reflections from a narrative perspective. Qualitative Research in Sport and Exercise 1, 125-140.


Table 1. Demographic characteristics

<table>
<thead>
<tr>
<th>Women’s details</th>
<th>Planning homebirth</th>
<th>Planning hospital birth</th>
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<tr>
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<td><em>n=13</em></td>
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\(^a\)One woman living with female partner

\(^b\)Determined by occupation according to Office for National Statistics Socio-economic Classification
### Table 2. Interview questions

<table>
<thead>
<tr>
<th>Risk Perception</th>
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</thead>
<tbody>
<tr>
<td>What is the condition which means you need extra care during your pregnancy?</td>
</tr>
<tr>
<td>Do you know if there are any risks to you or the baby associated with this condition?</td>
</tr>
<tr>
<td>How do you feel about these risks to you? To the baby?</td>
</tr>
<tr>
<td>Do you think there is anything you could do to lessen the risks to you? To the baby?</td>
</tr>
<tr>
<td>What makes you feel less at risk by planning to give birth in Chosen Location?</td>
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<tr>
<td>Is there anything about it that makes you feel more at risk?</td>
</tr>
<tr>
<td>What would the risks be of giving birth in Other Location?</td>
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<tr>
<td>Is there anything about it that would make you feel less risk?</td>
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</table>