

Becoming pregnant: exploring the perspectives of women living with diabetes

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ABSTRACT

Background

The risk of adverse pregnancy outcome for women with type 1 diabetes is reduced through tight diabetes control. Most women enter pregnancy with inadequate blood glucose control. Interview studies with women suggest the concept of 'planned' and 'unplanned' pregnancies is unhelpful.

Aim

To explore women's accounts of their journeys to becoming pregnant while living with type 1 diabetes.

Design of study

Semi-structured interviews with 15 women living with pre-gestational type 1 diabetes, between 20 and 30 weeks gestation and with a normal pregnancy ultrasound scan.

Setting

Four UK specialist diabetes antenatal clinics.

Method

Interviews explored women's journeys to becoming pregnant and the impact of health care. Analysis involved comparison of women's accounts of each pregnancy and a thematic analysis.

Results

Women's experiences of becoming pregnant were diverse. Of the 40 pregnancies described, at least one positive step towards becoming pregnant was taken by 11 women in 23 pregnancies but not in the remaining 17 pregnancies, with variation between pregnancies. Prior to and in early pregnancy, some women described themselves as experts in their diabetes but most described seeking and/or receiving advice from their usual health professionals. Three women described pre-conception counselling and the anxiety this provoked.

Conclusion

For women living with type 1 diabetes each pregnancy is different. The concept of planned and unplanned pregnancy is unhelpful for designing health care. Formal preconception counselling can have unintended consequences. Those providing usual care to women are well positioned to provide advice and support to women about becoming pregnant, tailoring it to the changing needs and situation of each woman.

Keywords

conception; counseling; diabetes mellitus; interview; preconception care; pregnancy.

INTRODUCTION

Women with type 1 and type 2 diabetes have an increased risk of adverse pregnancy outcomes including miscarriage, fetal congenital anomaly, and perinatal death.¹ There is a significant relationship between adverse outcome of pregnancy and poor glycaemic control in early pregnancy in women with type 1 diabetes, and one UK study demonstrated a fourfold increase in adverse outcomes, a fourfold increase in spontaneous abortion, and a ninefold increase in major malformation in women with an HBA_{1c} above 7.5%.² A lack of local glycaemic targets and suboptimal glycaemic control before and during early pregnancy were associated with poor pregnancy outcome in the Confidential Enquiry into Maternal and Child Health (CEMACH).³ There is evidence that the infants of women with type 1 diabetes who attend multidisciplinary pre-pregnancy counseling show significantly fewer major congenital malformations compared to infants of non-attending mothers.⁴ However, CEMACH found that only 38.2% of women with pre-existing type 1 diabetes had pre-pregnancy counselling documented in their notes and only 40% had a pre-pregnancy glycaemic test recorded in the notes in the 6 months before pregnancy was documented.³ CEMACH also found an association between poor pregnancy outcome and unplanned pregnancy (odds ratio [OR] = 1.8) and

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Submitted: 10 January 2008; **Editor's response:** 23 January 2008; **final acceptance:** 1 February 2008.

©British Journal of General Practice 2008; 58: 184–190.

DOI: 10.3399/bjgp08X277294

no contraceptive use in the 12 months prior to pregnancy (OR = 2.3).¹ CEMACH also reported that 40% of women with type 1 diabetes were documented as having not planned their last pregnancy, compared to 42% in the general maternity population.¹ As a result of these findings the National Institute for Health and Clinical Excellence guideline on diabetes and pregnancy, released in draft form for stakeholder consultation in October 2007, has the recommendation that women of childbearing age with diabetes who are not using contraception, or who are actively planning a pregnancy, should be offered specialist pre-conception care and advice.⁵ It also recommends that:

'... the importance of avoiding unplanned pregnancy should be an essential component of diabetes education from adolescence'.⁵

A dichotomy between 'planned' and 'unplanned' pregnancy is a concept widely used in health policy and health service provision, but it has long been recognised as problematic. The conventional division often fails to reflect the myriad of reasons and emotions that constitute the background to women becoming pregnant.⁶ The terms planned/unplanned, intended/unintended and wanted/unwanted are rarely used by women to describe their pregnancies. When pregnant women were asked specifically about these terms, the definitions given were very complex, suggesting that it is not really possible to categorise pregnancies by using these terms alone.⁶

The experience of being pregnant for those with diabetes has been studied. For example, an interview study of women with type 1 diabetes explored how women handled the challenge of optimising the possibility of a healthy child, and found all the women were faced with managing a balance between mastering and being enslaved by the challenge.⁷ An interview study of women with gestational diabetes explored the heightened uncertainties for women.⁸ The current study differs from these studies in focusing on becoming pregnant rather than being pregnant. The relatively high risk of adverse pregnancy outcome for women with diabetes and the limited success of current healthcare strategies in reducing this risk suggest that a better understanding of how women approach living with diabetes and becoming pregnant is needed before embarking on the development of further interventions.

METHOD

Semi-structured interviews were undertaken with 15 women living with type 1 pre-gestational diabetes who were between 20 and 30 weeks of pregnancy and had a normal pregnancy ultrasound scan.

How this fits in

Most women with diabetes enter pregnancy with inadequate glucose control, increasing the risk of infant death and congenital malformation. Interventions aimed at improving glucose control prior to conception have been based on the concept of 'planned' and 'unplanned' pregnancy with limited success. This study shows the intention to become pregnant is a continuum between planned and unplanned with most pregnancies between the two extremes, and with variation between pregnancies for each woman. The study highlights the importance of health professionals tailoring advice for women living with diabetes to each woman's current situation and suggests why formal pre-conception advice has limited impact.

Interviews are particularly suitable for exploring issues from the informant's perspective,⁹ and have been used successfully in the past to explore the attitudes, beliefs, and behaviour of women in relation to early pregnancy.¹⁰ This small exploratory study tackled the sensitive issue of becoming pregnant, which has not been investigated in other interview studies of women with diabetes. For this exploratory study, only women able to be interviewed in English were included.

Women were recruited via four specialist diabetes antenatal clinics in the West Midlands of the UK. The project researcher attended clinics when a woman with pre-gestational diabetes attended for the first time, introduced the study to each woman and arranged to contact interested women to schedule an interview. The clinic midwives assisted with recruitment when the researcher was unable to attend. During the 7 months of recruitment, 19 women were eligible to take part. One woman refused due to bereavement, two were hospitalised before the interview took place and contact was lost with one woman who initially consented. The participating women were between 19 and 34 years of age. All but one described themselves as white British with one white European.

The women chose a convenient venue for the interview. Nine interviews took place in women's homes, four with young children present, one took place in a café and five in a hospital consulting room pre-booked for the interview. These environments occasionally posed problems for the interview process; for example, interviews with young children present often involved interruptions and two interviews conducted in the clinic had to be stopped and re-started as the women were called away for medical procedures. In two instances, the participant's mother was in the same room at the time of the interview, and this presence and/or that of young children may have hindered willingness to discuss sensitive issues such as contraception use or reproductive choices. All interviews were audio-recorded, transcribed verbatim, and anonymised at

Box 1. Interview topic guide.

- ▶ Demographic details (age, occupation, and self-declared ethnicity)
- ▶ The journey to becoming pregnant
- ▶ The extent to which diabetes was considered during the journey
- ▶ Discussion with partner (if any), friends, or family
- ▶ Contraception decision making prior to this pregnancy
- ▶ Information-seeking and/or help-seeking prior to this pregnancy
- ▶ Advice received from health professionals prior to first and/or this pregnancy
- ▶ Information-seeking and/or help-seeking once this pregnancy was confirmed including that related to diabetes

transcription. Participant's names have been changed to protect their identity. The topic guide for the interviews is shown in Box 1. The interview process was reviewed by the research team (including a lay team member) after six interviews. Participants were encouraged to explore issues important to them and many women talked at length about their current pregnancy and circumstances. However, through the use of questions such as 'Can you tell me about what was going on in your life in the months before you became pregnant?', the interviewees were encouraged to talk about their experiences of becoming pregnant for each of their pregnancies.

The whole research team participated in analysis of the interviews. Initially the team each read three transcripts (total nine transcripts between them) then discussed these. Further analysis proceeded in two ways. Each transcript was read as a whole by at least two team members and the women's accounts of their pregnancies were summarised. Thematic codes were identified from the interview schedule and from the team's reading of the transcripts. These thematic codes were reviewed and refined by two team members before the interviews were thematically coded using NVivo software (version 7). Further team discussion focused on comparisons between the summaries of each woman's pregnancy experience and comparisons between women theme by theme.

RESULTS

Women's experiences of becoming pregnant varied by pregnancy, with differences for individual women as well as between women. Appendices 1–6 illustrate this diversity with summaries of the experiences of five women including what they said about taking positive steps towards becoming pregnant, or not, and what they told us about action they took in relation to their diabetes, if any.

The journey to becoming pregnant

Table 1 summarises the number of pregnancies and live births for each of the women interviewed and for

which pregnancies the women described taking positive steps towards becoming pregnant. The positive steps described by women varied and included discussing becoming pregnant with their partner, coming off the oral contraceptive pill, deciding not to restart contraception, undergoing fertility treatment, and careful attention to their diabetes. These are illustrated in the case studies (Appendices 1–5) and below:

'When we decided that it would be a good idea to have baby number two it became very difficult to get pregnant. They changed my insulin about three times in about 3 months and I went for tests and they said I wasn't ovulating. Once all the insulin issues had been sorted out then my periods started again and I got pregnant.' (Amy)

'We had to wait for a while, while we got the diabetes under control before we could start trying again, so the sort of months leading up to becoming pregnant were sort of trying to get well and get everything under control and then once the staff here gave me the go ahead, then we could start trying again and it took about 3 or 4 months to get pregnant.' (Helen)

'We decided ... before we got married that once we were married then we would just carry on and then if it happened, it happened sort of thing, because I thought it was going to take a long time so we weren't going to get hung up on it if you like ... I come off the pill [first pregnancy] ... [after pregnancy] I had the hormone implant for a while ... I did start bleeding throughout after a while, so I had that removed and a coil fitted but never again ... I went for my 6-week check and it wasn't in. So after that we just said that ... you know ... we were planning on looking into having another baby anyway, so if it happened again, it happened sort of thing and here we are now.' (Isabelle)

Interviewer: *'And what about when you started the fertility treatment? I mean did you do anything with your diet?'*

Participant: *'No ... well I was taking folic acid and that was one thing I was doing before trying to become pregnant. I didn't really change my diet.'* (Abigail)

The interviews with women took place some time after they became pregnant which is likely to have affected their recall of this time period. Some women seemed clear they took positive steps (for example Madeline, second pregnancy) or did not take any

positive steps (for example Madeline, first pregnancy) but with other women, their journey to becoming pregnant was less clear. While in many instances there was evidence of positive steps towards pregnancy, it is difficult to determine how many of these were being retrospectively interpreted as positive, or where the women were telescoping together the time prior to becoming pregnant and the very early stages of pregnancy. For example, Stephanie initially described being shocked to find herself pregnant while still taking the oral contraceptive pill, but later in the interview described taking folic acid in preparation for this same pregnancy. There is evidence that currently in the UK women perceive becoming pregnant as something they should make positive decisions about,¹¹ so the women in this study are likely to give accounts overemphasising positive steps to becoming pregnant. Women also struggled to reconcile conflicting feelings about a pregnancy. For example one woman, when asked how she felt when she first found out about her current pregnancy, said:

'I can't remember. It was all sort of ... to be perfectly honest with you I would not have had another child if it wasn't for [son]. If it was down to me personally I wouldn't have another one.' (Joy)

But later in the interview said:

'I think I should stress ... because it sounded really bad, but this pregnancy ... I do want as much as we wanted the first time but just for different reasons. It's really hard to explain that without sounding like "I'm not really that bothered." You know, we really are.' (Joy)

Any indications that the women gave of considering pregnancy beforehand were included as positive steps towards becoming pregnant in this analysis. However, of the 40 pregnancies described by the 15 participants, 23 pregnancies of 11 different women were identified, where they described taking at least one positive step towards becoming pregnant.

There were various patterns of consistency as to whether women took positive steps towards becoming pregnant. Of the women who had been pregnant more than once, five women consistently took positive steps towards becoming pregnant for each pregnancy, three women consistently did not take positive steps towards becoming pregnant for each pregnancy, and four women took positive steps in some pregnancies and not in others.

For the 17 pregnancies where no positive steps were taken towards becoming pregnant, the eight

women varied in how they described this including not using contraception, taking contraception on and off, or becoming pregnant while taking the contraceptive pill:

'I was hoping to get pregnant later in life because we were still young, but I don't regret it now ... I was using contraception but I'd gone onto a new pill and I was on it for about 2 months and it obviously failed and I became pregnant.' (Jane)

'We were trying to save up some money [for a holiday] ... which I was looking forward to until I found out I was pregnant with my first child ... I wasn't quite sure if I was ready to be a mother, but now I'm a mum I'm pleased ...'

Interviewer: *'So before you became pregnant with [daughter] were you using contraception?'*

Participant: *'Yes and no. Well, it was just where I'd get to the stage where I would keep forgetting to take my tablets or knew where the condoms were ... We kept both, which ... It's easily done.'* (Rachel)

'Well baby number three was a bit of a surprise. I said that I would very much like to have three children because I am one of three, my husband is one of two and once we had a boy and a girl he was quite happy that we'd finished our family. We'd just moved house and he'd said 'well maybe we could think about number three' the week that I was going "I think it's too late to ..." ... It just sort of happened ... I just wasn't using any contraception, which is how I got caught again ...' (Amy)

Advice from health professionals on living with diabetes and pregnancy

In the early stages of pregnancy, before attending formal antenatal care, some women felt they needed no additional advice from health professionals, considering themselves experienced at managing their own diabetes. This was particularly the case if they had a previous successful pregnancy. Women that did seek advice early in pregnancy tended to go to their usual health professional, their GP, the nurse in the GP practice with expertise in diabetes, or a diabetes nurse specialist. Those that could recall being given advice described being reassured to continue with what they were already doing to keep their blood glucose under control.

Some women described being given advice about diabetes and pregnancy before becoming pregnant. Isabelle recalled her doctor saying 'When you're planning on getting pregnant we need to know'. She went on to say:

Table 1. Women's pregnancies and live births and the pregnancies for which they describe taking positive steps towards becoming pregnant.

Identifier	Number of pregnancies	Number of Live births	Pregnancies for which the women describe taking positive steps
Jane	1		
Natalie	2	1	1st, 2nd
Louise	6	2 (2nd and 4th pregnancies)	2nd
Emma	2	1	
Joy	3	1	1st, 2nd, 3rd
Rachel	2	1	
Stephanie	1		1st
Abigail	3		1st, 2nd, 3rd
Caitlyn	3	1 (1st pregnancy)	1st, 3rd
Nadine	1		1st
Amy	4	3	1st, 2nd
Madeline	6	2 (4th and 5th pregnancies)	2nd, 3rd, 4th, 5th
Helen	2		1st, 2nd
Isabelle	2	1	1st, 2nd
Juliet	2	1	

'I didn't exactly go and tell him I was trying sort of thing. I just made sure that my bloods were well controlled beforehand and then I went from there.' (Isabelle)

Juliet recalled being told she could not have children and the effect this had on her:

'I wanted children and I was told to face the fact that I would probably never have them. And that was a crushing blow because at the time I really, really wanted children, so then I resigned myself to the fact that I was never going to have children and developed a lifestyle around that and that was fine. Then when I got pregnant with [son] ... your life changes overnight ... I said, "I never expected to be pregnant so no matter what happens I'm going to enjoy the pregnancy while I'm pregnant and enjoy the attention of being pregnant".' (Juliet)

Nadine was advised to have children early and found her life choices fitted well with this advice:

'I was always advised if I wanted children to have them earlier rather than later and it just happened that I happened to meet the guy that I wanted to marry and have children with early, so I'm quite fortunate really.' (Nadine)

Three women described attending preconception counselling prior to their first pregnancy at two

different hospital-based clinics. All three women talked about the fear they experienced after the preconception counselling and that after the counselling they found it difficult to make the decision to become pregnant (see Nadine and Joy in Appendices 2 and 5 respectively).

'We'd gone to the hospital and we'd had pre-pregnancy counselling ... which wasn't very positive ... it was a very, very negative experience. We came away from there and I was very upset and [husband] was quite upset too and then we started talking about adoption and fostering. We were filled with dread really about the consequences of getting pregnant — for me and for the baby. That was November-time and then in the January I sort of thought I'm never going to rest if I don't ... you know ... if I'm not getting pregnant myself, so let's just ... I'm going to look after myself and let's just go for it.' (Natalie)

DISCUSSION

Summary of main findings and comparison with existing literature

Women's journeys to becoming pregnant are very variable. For any one woman the journey to becoming pregnant may be different for different pregnancies. Women living with type 1 diabetes approach pregnancy in a similar way to women without diabetes. The intention to become pregnant needs to be considered as a continuum between planned and unplanned with the majority of pregnancies somewhere in-between planned and unplanned.¹⁰ Women look to themselves and to the health professionals they are normally in contact with for maintaining good blood glucose control in early pregnancy. They recalled reassurance and support for their own attention to blood glucose control as positive, increasing their confidence in living with diabetes and pregnancy. The three women interviewed who had experienced formal preconception counselling described feeling very anxious afterwards. Although some anxiety may be appropriate, the level of anxiety the sessions provoked created an additional burden for the women.

The proportion of pregnancies of the women interviewed where they had not taken positive steps to become pregnant was similar to the proportion of women with diabetes reported as having not planned their last pregnancy.¹ This study's findings also support those of other studies that demonstrate the complex lived experiences of becoming pregnant that defy categorisation as planned or unplanned.¹⁰ Of the three women in our sample who attended preconception counselling, there are hints in their accounts that the counselling increased their focus

on blood glucose control for pregnancy and so may have reduced their risk of adverse pregnancy outcome as has been found in other studies.⁴ However, the adverse effect of the counselling on the women's psychological wellbeing has not previously been documented.

Strengths and limitations of the study

This exploratory interview study is relatively small and limited to women with diabetes who were currently pregnant with a normal ultrasound scan. The sample included women with previous adverse pregnancy outcome. The sample did not include women of diverse ethnicity. The interviews sought the women's accounts of becoming pregnant rather than being pregnant. This required a sensitive approach and persistent probing during the interview as women were much more comfortable talking about their experience of being pregnant. The details given by women about becoming pregnant were often very sketchy. Despite a lack of detail, this data is very valuable as these accounts are so difficult to gather and have not been reported in published literature. The women's accounts of becoming pregnant are likely to be limited by difficulty of recalling details of particular pregnancies and coloured by their subsequent experiences and by social norms. Where the pregnancy outcome was miscarriage, women had particular difficulty recounting their experiences, most stating that they had erased the experience from their memory entirely and one directly requested not to be questioned about that particular pregnancy at all.

Miscarriage can be an extremely distressing experience for women, and one sometimes marked by feelings of guilt, personal failure, as well as loss.¹¹ Indeed, such reactions may have been exacerbated in the presence of a chronic illness which is known to have potential adverse implications for pregnancies. This sample did not include women with type 2 diabetes who may have a very different experience of diabetes from the women in our study.

Implications for clinical practice and future research

This study highlights the importance of health professionals tailoring advice for women living with diabetes to each woman's current situation. It suggests women are likely to benefit from advice and support that builds on their own resources and that the health professionals normally seeing women in relation to their diabetes may be in the best position to offer advice and support both before pregnancy and in early pregnancy. The study also suggests formal pre-conception advice sessions are unlikely to have an impact on most pregnancies for women with diabetes as attendance assumes some prior consideration of becoming pregnant. Although such formal advice sessions may continue to have a role for some women with diabetes and other chronic disease, further research is needed to assess the potential for unintended adverse effects of these sessions on women's psychological wellbeing. Further research is needed to understand the experience of women with type 2 diabetes becoming pregnant.

COMMENTARY

Standing by

In the last 20 years general practice obstetrics has retreated from a position where we were central to pre-pregnancy counselling, diagnosis of pregnancy, antenatal care, and in many cases intrapartum and postpartum management, to being almost completely separated from any woman who contemplates or embarks on pregnancy. This might superficially appear a good thing: midwives are experts in the field of normal pregnancy, with complications better left to specialists who have the means to intervene at hand.

We have to consider whether as family doctors it is a good thing to have distanced ourselves so far from this important family event. The article by Griffiths *et al*¹ suggests that specialist clinics may have done more harm than good by emphasising the abnormal rather than the normal.

Experience tells us that women were happy to have a GP present, offering a feeling of familiarity and confidence at an uncertain time. The derivation of obstetrician comes from the Latin 'to stand by'. Our branch of our profession may have forgotten the importance of simply being there for patients, and seeing pregnancy as not just embarking on a new venture, but within the great continuum of life. The disappearance of maternity care from our duties may not be in the interests of patients who need a personal service at an emotional time. Not to mention the fulfilment of the GP/obstetrician.

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REFERENCE

1. Griffiths F, Lowe P, Boardman F. Becoming pregnant: exploring the perspectives of women living with diabetes. *Br J Gen Pract* 2008; **58**: 184–190.
DOI: 10.3399/bjgp08X277348

Funding body

This study was funded by Diabetes UK (BDA: RD06/0003245)

Ethical approval

This study was approved by Coventry Local Research Ethics Committee (07/Q2802/1)

Competing interests

Rodger Gadsby is a member of the guideline development group for the NICE diabetes and pregnancy clinical guideline. All other authors state that they have no competing interests

Acknowledgements

We are grateful to the women who participated in this study and to the health professionals who assisted us in recruiting study participants. We are grateful to Uzma Manazar and Olivia de Rougemont for assistance with coding and analysis.

Discuss this article

Contribute and read comments about this article on the Discussion Forum: <http://www.rcgp.org.uk/bjgp-discuss>

REFERENCES

1. Confidential Enquiry into Maternal and Child Health. *Diabetes and pregnancy: are we providing the best care? Findings of a national enquiry England, Wales and Northern Ireland*. London: CEMACH, 2007.
2. Temple R, Aldridge V, Greenwood R, et al. Association between outcome of pregnancy and glycaemic control in early pregnancy in type 1 diabetes: population based study. *BMJ* 2002; **325**(7375): 1275–1276.
3. Confidential Enquiry into Maternal and Child Health. *Pregnancy in women with Type 1 and Type 2 diabetes in 2002–2003 England, Wales and Northern Ireland*. London: CEMACH, 2005.
4. Kitzmiller JL, Gavin LA, Gin GD. Preconception care of diabetes. Glycemic control prevents congenital anomalies. *JAMA* 1991; **265**(6): 731–736.
5. National Institute for Health and Clinical Excellence. Diabetes in pregnancy: management of diabetes and its complications from pre-conception to the postnatal period. (in progress). <http://www.nice.org.uk/guidance/index.jsp?action=byID&o=11626> (accessed 30 Jan 2008).
6. Barrett G, Wellings K. What is a 'planned' pregnancy? Empirical data from a British study. *Soc Sci Med* 2002; **55**(4): 545–557.
7. Berg M. Pregnancy and diabetes: how women handle the challenges. *J Perinat Educ* 2005; **14**(3): 23–32.
8. Evans MK, O'Brien B. Gestational diabetes: the meaning of an at-risk pregnancy. *Qual Health Res* 2005; **15**(1): 66–81.
9. Malterud K. Qualitative research: standards, challenges, and guidelines. *Lancet* 2001; **358**(9280): 483–488.
10. Bachrach CA, Newcomer S. Intended pregnancies and unintended pregnancies: distinct categories or opposite ends of a continuum? *Fam Plann Perspect* 1999; **31**(5): 251–252.
11. Letherby G. The meanings of miscarriage. *Womens Stud Int Forum* 1993; **16**(2): 165–180.

Appendix 1. Becoming pregnant: summaries of the pathways to pregnancy — Louise.

- ▶ **1st Pregnancy:** Became pregnant 2 weeks after being diagnosed as diabetic. *'I was pregnant and the doctors and all my family talked me into having an abortion.'*
Outcome: Abortion
- ▶ **2nd Pregnancy:** Wanted to get pregnant as a result of losing first baby *'... I just wanted a baby and because I lost it [previous pregnancy], I deliberately caught pregnant with [son]'*. Ignored medical advice about blood sugar levels. *'I didn't have a clue really because I hadn't spent any time where ... you know ... listening to what they said about having a baby and getting your sugars right. I didn't listen to them. I just went ahead and did it.'* Induced at 36 weeks, emergency caesarean section, baby taken to special care.
Outcome: Child adopted
- ▶ **3rd Pregnancy:** Wasn't using contraception as didn't think she could get pregnant again *'... so I thought naturally I couldn't have any more kids because they'd be taken off me straightaway, so ... I don't know what went through my head to be honest. I just believed that I couldn't get pregnant again.'*
Outcome: Ectopic pregnancy diagnosed at laparoscopy
- ▶ **4th Pregnancy:** Pregnancy a result of a 'one night stand'. Good glycaemic control. Elective caesarean section. *'I was more determined to do everything right and I did. They said my sugars were brilliant, I'd done really well and he was fine.'*
Outcome: Live birth
- ▶ **5th Pregnancy:** Not using contraception. *'So when I went to the doctor's he said "I know what's wrong with you — you're pregnant" and I was in shock because even though I weren't using anything, I was still shocked that I actually was.'*
Outcome: Miscarriage
- ▶ **6th Pregnancy:** Not using contraception, but didn't want to become pregnant. *'... I didn't want to be pregnant because I thought it was the wrong time. I didn't feel very well. My sugars were playing up and I was finding it hard to deal with [son].'* No complications so far. Planned caesarean section.

Appendix 2. Becoming pregnant: summaries of the pathways to pregnancy — Nadine.

- ▶ **1st Pregnancy:** Diabetic since childhood, had insulin pump from 2005. Attended pre-conception counseling which was off putting, *'... because initially I went to a preconception assessment and it was ... well, I was petrified after that point really'*. Joined internet forum for pregnant women with diabetes *'... just to reassure myself really that it's actually not that bad'*, also requested information from Diabetes UK, and searched for information on pregnancy and diabetes online. Began taking folic acid, decreased alcohol and came off contraceptive pill, became pregnant 8–9 months later. Told would not be seen at hospital until 16 weeks, so had private scan at 9 weeks *'... because I wanted to just know that things were going OK.'* Checks blood sugars 12–18 times a day. No complications, size of fetus in 50th percentile, has been told unlikely to be induced.

Appendix 3. Becoming pregnant: summaries of the pathways to pregnancy — Caitlyn.

- ▶ **1st Pregnancy:** Wanted to become pregnant, came off contraceptive pill. *'Well I wanted to so I sort of planned for it but I didn't do any of the tablets or anything like that.'* Felt very uncertain about what to expect. *'I think I just didn't have a clue. The first time was sort of like I was very young and I didn't even know what to expect really. I just went along with it.'* No complications, blood sugars well controlled.
Outcome: Live birth
- ▶ **2nd Pregnancy:** Wasn't using contraception *'I think I just sort of ran out of pills and so it was my own fault'*. Did not control or check sugars as much as previous pregnancy. *'It didn't go on for very long and so ... I can't remember how many weeks I was because that wasn't planned and I didn't do as much as I would have done, or I should have done probably ... I wasn't as controlled as I was with the first pregnancy.'*
Outcome: Miscarriage
- ▶ **3rd Pregnancy:** Saw GP after decision to come off contraceptive pill to check everything was ok before becoming pregnant. *'I saw him when I first came off the pill just to sort of check that everything was all right and he did all the blood tests and that ... so there was somebody there saying "It's all right".'* No complications with pregnancy so far. *'My sugars have been fine and I had a scan it was just a perfect weight and I know with my last one, she was 3 kilos, so she wasn't a big baby and so that will remain good.'* Feels confident and happy with the pregnancy so far.

Appendix 4. Becoming pregnant: summaries of the pathways to pregnancy — Madeline.

- ▶ **1st Pregnancy:** Was using contraceptive pill. *'... the first pregnancy I'd only been with my husband about 6 weeks so that was a bit of a shock'.* Miscarried at 14/15 weeks.
Outcome: Miscarriage
- ▶ **2nd Pregnancy:** Spoke to practice nurse about possibility of further pregnancy as wanted to be pregnant again *'... they didn't know what caused the miscarriage and everything, they just said I'd got to keep an eye on my blood sugars and that was basically the only advice I got.'* Stopped contraceptive pill, started taking folic acid.
Outcome: Miscarriage
- ▶ **3rd Pregnancy:** Same actions as before. Checking blood sugars 10 times a day.
Outcome: Miscarriage
- ▶ **4th Pregnancy:** Wanted to become pregnant, feared miscarriage after last three, *'... we were just told there was no reason other than the diabetes that we'd lost the other three. After they'd done all the blood tests and everything else they said the only reason they could come up with was the fact that my blood sugars weren't controlled enough.'* Received advice from diabetes consultant about controlling blood sugars. No complications.
Outcome: Live birth
- ▶ **5th Pregnancy:** Had been back on contraceptive pill, but came off to try for baby, still taking folic acid. Complications during pregnancy (ketones in urine, oedema). Induced at 37 weeks due to size of fetus, emergency caesarean due to decreased movement of baby.
Outcome: Live birth
- ▶ **6th Pregnancy:** Was taking contraceptive pill, pregnancy discovered by GP when consulting about a different problem. *'... and she [GP] said 'well we'll just check your dip stick and all the rest of it and I'll just do a pregnancy test while you're here' and I thought 'what do I need one of them for I'm on the pill?'* She went *'you do know you're pregnant don't you?'* and I just went *'no, no, no'.* Has adjusted insulin and taking iron for anaemia. No complications so far, but wishes to avoid caesarean at all costs, *'I shall do everything I can to avoid the section'.*

Appendix 5. Becoming pregnant: summaries of the pathways to pregnancy — Joy.

- ▶ **1st Pregnancy:** Planned. Attended pre-conception counseling beforehand. *'... we'd made the decision that we were going to try for a baby and we actually sought advice from ... my GP and they put me in contact with [doctor] at the hospital and [doctor] gave me quite a lot of information and we had a pre-conception meeting with her, and she explained to me all the possible problems that we could have because of my diabetes and that we could have with the baby. I found that quite off-putting actually, but we still made the decision to go ahead'.* Started taking folic acid and stopped using contraception after pre-conception counseling. Pregnancy resulted in miscarriage, although diabetes was well controlled, *'... but I was well controlled at the time as well, so I knew ... although you still feel it's your fault ... you know ... I think every woman feels that. I knew it wasn't to do with having my diabetes badly controlled and it was my first pregnancy and it was one of those things ...'.* However the miscarriage was nevertheless difficult to remember and talk about, *'To be honest, that's sort of a time that I've blocked out as much as I can because it just wasn't very nice and I can't remember a lot about it at all'.*
Outcome: Miscarriage
- ▶ **2nd Pregnancy:** Planned. Took folic acid and kept closer control of diabetes. Was very keen to have baby and tried to minimize risks as much as possible *'We didn't really want to be childless so it's just a case of ... You know what the risks are, so you try and prevent them as much as possible I suppose and that's what we did.'* *'I needed to have a child and ... you know ... that's what we wanted'.* Pregnancy went well with no complications, despite anxieties. *'It was a really good pregnancy actually. I kept my diabetes well controlled throughout it and obviously because I'd been warned of the risk. I did feel really good throughout it but like I said, there was just that nagging feeling ... you know ... there in the back of my mind, you know, is this going to be alright, is that going to be alright? And pretty much up until the 20-week scan I didn't really relax until we'd gone through that process and I knew ... that everything was Ok.'*
Outcome: Live birth
- ▶ **Pregnancy 3:** Planned. Took folic acid prior to pregnancy and stopped using contraception. Insulin had just been changed prior to pregnancy and felt ill for many months, despite diabetes remaining well controlled *'... this time up until probably a couple of weeks ago I felt really rough most of the way through.'* Decision was made to have another child in order to give current child a sibling. No complications so far.