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Published version

SOLTANI, H., DICKINSON, F. M., KALK, J. and PAYNE, K. (2007). Breast feeding practices and views among diabetic women: a retrospective cohort study. Midwifery.

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Breast feeding practices and views among diabetic women: A retrospective cohort study

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Abstract

Objective

to explore the pattern and experiences of breast-feeding practices among diabetic women.

Design

retrospective cohort study using maternal records and postal questionnaires in a Baby-Friendly hospital.

Participants

diabetic mothers including women with gestational diabetes, and type 1 and 2 diabetes mellitus.

Findings

from the total group of respondents, 81.9% intended to breast feed. The actual breast feeding rates were 81.9% at birth, 68.1% at 2 weeks and 28.7% at 6 months postpartum. Major themes that were identified from women's experiences included information and advice, support vs. pressure, classification and labelling, and expectations.

Conclusions

more than two-thirds of the diabetic women intended to breast feed and actually did breast feed in this study. For both the total study population and the type 1 and 2 diabetics alone, more than half were still breast feeding at 2 weeks postpartum, and approximately one-third were still breast feeding at 6 months postpartum.

Implications for practice

structured support, provided for women through Baby-Friendly initiatives, was appreciated by the diabetic women in this study. The extent to which this support influenced the highly successful breast feeding practices in this group of women needs focused investigation. The need for a delicate balancing act between pressure and advice in order to prevent coercion was noted.

Keywords: Breast feeding; Diabetic women; Retrospective

Introduction

Delayed lactogenesis (Neubauer et al., 1993), interventional childbirths, admission to intensive/special neonatal care units, and increased risk of infection have been considered as potential factors leading to reduced breast-feeding capacity in women with diabetes. Previously, there has been controversial advice regarding breast feeding in diabetic mothers, with authors advising against it due to potential poor pregnancy outcome and increased risk of infection (Clayton, 1956).

More recently, however, there has been a trend towards increasing breast feeding rates (Hamlyn et al., 2002), particularly in diabetic women who tend to choose

breast feeding in greater numbers (Simmons et al., 2005). In a 4-year study of women with pre-existing diabetes (type 2, $n=30$) and gestational diabetes mellitus (GDM, $n=373$), Simmons et al. showed relatively high rates of breast feeding; 69% and 84% at hospital discharge, respectively. Nevertheless, information on breast feeding outcomes in this group of women is limited. According to a recent national report (Confidential Enquiry into Maternal and Child Health, 2005), more than half of diabetic women (type 1 and 2) intend to breast feed their babies. O'Sullivan (1995) raised awareness that although considerable attention has been given to pregnancy and diabetes, there is a lack of information regarding breast feeding for diabetic mothers. A limited number of studies have examined breast feeding outcomes in diabetic women compared with non-diabetic women (Whichelow and Doddridge, 1983; Ferris et al., 1988, 1993; Webster et al., 1995). These studies reported that diabetic women were able to breast feed as successfully as non-diabetic women, and the problems encountered by both groups were similar. However, these studies were small and did not provide long-term information on breast feeding patterns in all types of diabetic women. Thus, there is a need for further information on breast feeding patterns and factors that may influence its success in women with different types of diabetes.

The present study was designed primarily to assess breast feeding practices among diabetic mothers up to 6 months postpartum, and to explore factors that may influence breast feeding success from women's experiences. The study was undertaken in Derby Hospitals NHS Foundation Trust, which has been awarded 'Baby-Friendly Initiative' status since 1998. As a Baby-Friendly hospital, the 10 steps to successful breast feeding are implemented; these promote and protect the right of women to breast feed their baby (World Health Organization, 1998). During pregnancy, women are given information and have an opportunity to discuss the benefits of breast feeding. The hospital supports breast feeding by encouraging skin-to-skin contact, early feeding, not separating mothers and babies, giving help and support to enable the mother to attach the baby correctly to the breast, and showing women how to hand express their milk. Diabetic women receive additional information, including discussion about screening for neonatal hypoglycaemia and its subsequent management. In order to promote and protect breast feeding whilst offering more choice, women are encouraged to hand

express their milk during pregnancy and to freeze it at home, so that they can give this to the baby following birth if required. The risks and benefits of antenatal hand expression are unknown; this is being examined separately and will be reported in a future publication.

Aims and objectives

The main purpose of this study was to provide information on breast feeding patterns among diabetic women. It also aimed to explore diabetic mothers' experiences of breast feeding in a Baby-Friendly hospital, as well as examining their reasons for stopping breast feeding.

Design and methodology

A specialist diabetic team provides care and maintains a routine database of diabetic women in the study maternity unit. This was a 2-year retrospective cohort study of women who attended the combined obstetrics/diabetic clinic between September 2001 and August 2003. The women who were invited to participate in the study were known to have diabetes according to local guidelines, in line with the World Health Organization (Reinauer et al., 2002), using the following diagnostic criteria: GDM included fasting glucose >5.5 mmol/l and/or plasma glucose ≥ 8 mmol/l, 2 hours after a 75-g oral glucose load. Type 1 and 2 diabetes were known before the pregnancy. Exclusion criteria included women with twin pregnancies and women with learning difficulties.

A questionnaire was developed using a standard, locally developed tool that collected information related to breast feeding from the general maternity population. The questionnaire mainly consisted of tick boxes, with some short answers and open questions for comments. The tool, which was limited to information up to discharge, was extended to include maternal demographics, type of feeding at different postpartum stages up to 6 months, length of breast feeding, and the reasons for stopping breast feeding. Data such as maternal early-pregnancy weight and height [combined as body mass index (BMI)], baby birth weight, gestational age and type of birth were also collected through the

questionnaire and checked against the maternal notes. Data from the maternal notes were used where there was any discrepancy.

The questionnaire was reviewed by a joint specialist team (diabetes specialist, obstetrician and midwife). It was then piloted using maternity clients ($n=3$) and midwifery staff ($n=3$), and no major changes were required prior to distribution. Ethical approval was obtained from both the Trust and the Local Research Ethics Committee. Women were sent a full information sheet, a questionnaire and a prepaid envelope to respond. No explicit consent was sought as the questionnaires were for self-completion and return, with inherent implied consent.

The questionnaires were sent to all women identified as above in July 2004. Breast feeding rates were ascertained at birth, 1 week, 2 weeks, 6 weeks, 4 months and 6 months postpartum.

The socio-economic status of women was classified using maternal occupation based on the National Statistics Socio-economic Classifications (Office for National Statistics, 2005).

Data analysis

Data were entered using Formic, Version 4. Analysis of quantitative data was performed using the Statistical Package for Social Sciences, Version 14 for the descriptive statistics. Data are expressed as means [standard deviations (SD)] for normal distributions, and medians (interquartile ranges (IQR)) for non-normal distributions.

Content analysis was used for the qualitative data, whereby the responses given to open questions were grouped into similar themes, and questionnaire identification numbers were allocated in brackets (see quotations). Type of diabetes and duration of breast feeding are also included in brackets after each presented comment.

Results

Data for 257 diabetic women were available from the joint diabetic/obstetric team; 43 women had type 1 or 2 diabetes, and 214 women had GDM. From the GDM group, 18 women were excluded due to the lack of a valid contact address ($n=15$), twin births ($n=2$) and learning difficulties ($n=1$). Four women returned blank questionnaires, as they had borderline glucose intolerance and did not believe that they had diabetes. This left the total approachable number of subjects as 235 (including 192 cases with GDM). The total response rate was 40%, including 15 women with type 1 diabetes, 11 women with type 2 diabetes and 68 women with GDM (51 diet controlled and 17 insulin controlled). The average time postpartum at which women received the questionnaire was 20 months ($SD=7$, range 9–32). The general characteristics of respondents are presented in Table 1, including age, BMI, pattern of breast feeding, ethnicity and socio-economic status. The great majority of respondents were white, and the proportion of Asian women in the study population was in line with the national report (Confidential Enquiry into Maternal and Child Health, 2005).

Table 1.

Characteristics of diabetic women in the study compared with national (type 1 and 2 diabetics and general population) data.

	Survey (all diabetics, including GDM) (n=94)	Survey (type 1 and 2 diabetics) (n=26)	National (diabetics)*	National (general)†
Age (median, IQR)	34.5 (31.0, 39.0)	35.5 (30.7, 39.0)	31.0 (27.0, 35.0)	–
Length of breast feeding (median, IQR) (weeks)	8.0 (3.0, 24.0)	6.0 (3.0, 26.0)		
BMI (median, IQR)	24.7(21.9, 31.9)	25.2 (22.5, 32.8)	–	–
Ethnicity (%)				
White	79.8	84.6	80.3	–
Asian	14.9	11.5	10.5	–
Black	2.1	3.8	5.4	–

	Survey (all diabetics, including GDM) (n=94)	Survey (type 1 and 2 diabetics) (n=26)	National (diabetics)*	National (general)†
Other	3.2		3.2	–
Not known			0.2	–
Socio-economic status (%)				
Higher occupation	32.0	30.8	–	29.0
Intermediate occupation	19.1	26.9	–	20.0
Lower occupation	27.7	19.2	–	27.0
Unemployed/student/unpaid work/unclassified	20.2	23.1	–	24.0

GDM, gestational diabetes mellitus; IQR, interquartile range; BMI, body mass index.

* National data on diabetic women excludes women with GDM (Confidential Enquiry into Maternal and Child Health, 2005).

† Socio-economic classification from baby-feeding survey (Hamlyn et al., 2002, p.10).

Fewer than one-third of the respondents were from higher occupational backgrounds; the rest were from intermediate and lower occupations or not in a long-term occupation (Table 1). These figures are very similar to the general population from the national report (Confidential Enquiry into Maternal and Child Health, 2005). Table 2 shows some of the maternal and fetal variables at birth. The higher rate of vaginal birth in this survey, compared with the national report, may be due, partly, to the inclusion of all non-instrumental vaginal deliveries (irrespective of being spontaneous) in the data (Table 2). The rate of caesarean section was considerably higher for type 1 and 2 diabetics in both the national data, and the results of this survey, compared with the rate for the total survey population including GDM women (Table 2).

Table 2.

Pregnancy outcome in diabetic women in the study and national (type 1 and 2 diabetics) data.

	Survey (all diabetics, including GDM) (n=94)	Survey (type 1 and 2 diabetics) (n=26)	National (diabetics)*
Primigravid (%)	38.3	38.5	39.7
Vaginal delivery (%)	38.3	30.8	24.4 [†]
Instrumental delivery (%)	17.0	7.7	7.7
Caesarean section (%)	43.6	61.5	67.4
Induction (%)	51.1	68.0	38.9
<i>Birth weight (%)</i>			
≥4000 g	5.5	7.6	21.0
≥4500 g	1.1	0.0	5.7
<i>Gestation (weeks) (%)</i>			
<37	16.1	26.9	35.5
37–41	79.7	73.0 [‡] (37–40)	64.6
42+	1.1	0.0	0.1

GDM, gestational diabetes mellitus.

* National diabetic data excludes women with GDM (Confidential Enquiry into Maternal and Child Health, 2005).

[†] Spontaneous birth.

[‡] 37–40 weeks.

Table 3 shows the proportions of mothers in the survey (all types of diabetic women, or those with type 1 or 2 diabetes alone) who planned to breast feed (81.9% and 72.0%, respectively). Table 4 illustrates the proportions of respondents who initiated and continued breast feeding at different postpartum stages. In line with their intention, the majority of women commenced breast

feeding (81.9% and 73.1%, respectively), and a substantial proportion of women continued to do so either exclusively or mixed for a considerable length of time. For both the total study population and the type 1 and 2 diabetics alone, more than half were still breast feeding at 2 weeks postpartum, and approximately one-third were still breast feeding at 6 months postpartum.

Table 3.

Mother's baby-feeding intention.*

Intention (%)	Survey (all diabetics, including GDM) (n=94)	Survey (type 1 and 2 diabetics) (n=26)
Breast feeding	81.9	72.0
Artificial milk feeding	10.6	26.2
One breast feed and then artificial milk	5.3	0.0

GDM, gestational diabetes mellitus.

*Where percentages do not add up to 100%, this is due to missing values.

Table 4.

Detailed rates of different types of feeding among the study population, including exclusive breast-feeding rates, at different stages postpartum (n=94).*

(%)	Type of first feed		1 week		2 weeks		6 weeks		4 months		6 months	
	All diabetics, including GDM	Type 1 and 2 diabetics	All diabetics, including GDM	Type 1 and 2 diabetics	All diabetics, including GDM	Type 1 and 2 diabetics	All diabetics, including GDM	Type 1 and 2 diabetics	All diabetics, including GDM	Type 1 and 2 diabetics	All diabetics, including GDM	Type 1 and 2 diabetics
Breast feeding	81.9	73.1	70.2	46.2	68.1	50.0	43.6	19.2	24.5	15.4	17.0	3.8
Mixed feeding	-	-	9.6	19.2	5.3	7.7	16.0	19.2	19.1	15.4	11.7	19.2
Artificial milk feeding	14.9	34.6	19.1	34.6	24.5	42.3	39.3	61.5	55.3	69.2	70.2	76.9

GDM, gestational diabetes mellitus.

* Where percentages do not add up to 100%, this is due to missing values.

Content analysis of open-ended questions

Women who had ceased breast feeding at the time of the survey were asked the reasons for this in an open-ended question. Women were also invited to comment on their experience of breast feeding and the support they received from staff.

Reasons for stopping breast feeding

The main reasons for stopping breast feeding are presented in Table 5. There is some overlap in the presented figures, as more than one reason was given by some mothers. The most common reason for discontinuing breast feeding from mothers' perspectives was 'lack of sufficient milk':

Baby was getting very hungry, and my milk was not filling her up, formula milk filled her up more (186, GDM, 22 weeks).

Because I kept getting sore nipples and I wasn't producing much milk, she kept crying (251, GDM, 1 week).

Could not produce enough milk to satisfy baby (207, GDM, 2 weeks).

Not enough milk, could only go home once my son had fed (215, type 1 diabetes, 2 weeks).

Table 5.

Reasons given for breast feeding cessation.

Reasons (n=79)	%	Breast feeding duration range (weeks)
Perceived lack of sufficient milk	25.0	First feed–22
Latching problems	13.0	1–6

Reasons (n=79)	%	Breast feeding duration range (weeks)
Too time consuming	13.0	2–20
Returning to work	11.0	8–38
Maternal illness	9.0	3–32
Convenience (involving partner)	5.0	6–25
Natural progression	22.0	24–82
Poor weight gain/weight loss	2.5	4–7
Ability to quantify artificial milk feed	2.5	6–25
Dislike of breast feeding in public	2.5	6–8

Some women expressed their motive to be latching problems:

It became extremely painful and my milk did not ‘come in’ (198, type 2 diabetes, 1 week).

Inverted nipples, could not get baby to latch on, expressed milk in the end (163, type 1 diabetes, 3 weeks).

Baby would not take to breast at all, only breast fed through express and tube, adviser busy (176, type 2 diabetes, 3 weeks).

Baby's loss of weight, only able to express foremilk, and getting very upset over baby latching on correctly (174, type 1 diabetes, 4 weeks).

A considerable proportion of respondents thought that breast feeding was ‘too time consuming or demanding’:

Life too hectic with three kids to be feeding most of time (10, GDM, 8 weeks).

Initially began to use formula as my baby was very demanding and I felt as though I sat there all day and that he was never satisfied (95, type 1 diabetes, 26 weeks).

Baby was too demanding (158, GDM, 2 weeks).

I had no feeding routine which I thought would make weaning harder. I also found breast feeding very demanding and tiring (260, GDM, 12 weeks).

Another significant reason for discontinuation of breast feeding in this group of women was maternal illness. The responses to this category included:

Mollie struggled and had a bad infection. Midwife wanted me to go back into hospital because I was ill, husband looked after her (84, GDM, 3 weeks).

Awful mastitis and baby always hungry (86, GDM, 12 weeks).

Blood sugars plummeting to <2 mmol during feed. As I lived by myself, it was dangerous to continue (138, type 1 diabetes, 6 weeks).

Had back problems and could not hold my baby for the length of time needed in the position required (194, GDM, 5 weeks).

Health problems due to bowel adhesions, undiagnosed at this point (202, type 1 diabetes, 7 weeks).

Infection at the caesarean (204, GDM, 4 weeks).

There were other, less-quoted comments that were hugely important in terms of cultural influence, perceived inherited physiological problems and, in one case, the mother's image of breast size and ability to produce breast milk:

Did not like it at all (183, GDM, 3 weeks).

Family heritage problem, my mum and her mum could not breast feed, no hormone (197, GDM, 1 week).

Not enough milk come out from my breast feed. Maybe I got a small breast (208, GDM, 3 weeks)

Natural progression was another common theme, which related to mothers who breast fed for longer periods of time (range 24–82 weeks).

General comments

Fifty-eight respondents chose to add further comments at the end of the questionnaire. The number of responses to this question was larger than any other. The comments varied widely, some positive and some quite negative, but they seemed to revolve around one main theme (information and advice) and three associated themes (support vs. pressure, classification and labelling, and expectations).

Information and advice

Women appreciated the provision of information, and many would have preferred more advice. On some occasions, women wanted advice that was counter to that normally given by midwives:

I would have also liked lots more advice on setting up a good sleeping and feeding pattern for my daughter—I do not believe that feeding on demand is a good idea at all (85, GDM, artificial milk feeding).

This was not always the case, however, and some women were quite happy with the advice they received:

The midwives helped with tips on how to get the baby to latch on to the breast, etc. (92, GDM, 12 weeks).

Support vs. pressure

This topic is discussed quite frequently in relation to breast feeding. Managing the balance between support and coercion is often likely to be difficult, with one woman's support being another woman's pressure. Some respondents clearly expressed their feelings of being pressurised into breast feeding:

Overall, I felt the staff were too pushy with regards to breast feeding and made you feel uncomfortable and like a bad mother if you did not do it (250, GDM, 8 weeks).

Throughout my pregnancy, I felt pushed to breast feed and the idea of bottle feeding was frowned upon by hospital staff, although my community midwives were more realistic (138, type 1 diabetes, 6 weeks).

I felt some of the midwives on the ward railroaded you into breast feeding and developed an attitude toward you if you decided to combination feed your baby (11, type 2 diabetes, 38 weeks).

Some women found the encouragement and support necessary and were glad of it:

I did not want to breast feed and was glad that I wasn't pressured to try. I think people with diabetes have enough to cope with after giving birth than to try breast feeding (178, type 1 diabetes, artificial milk feeding).

The staff were extremely supportive both before and during the birth (179, GDM, 8 weeks).

I would just like to thank everyone who helped me to keep trying to breast feed for the 4 days I was in. It was a shame our determination to produce milk did not work. But I am glad I gave it a fair go (197, GDM, 1 week).

Other women felt that they needed more encouragement and support:

It seemed that as breast feeding was natural, you should be able to do it and at 3 a.m. when you have a hungry baby who cannot latch on, you need more support and guidance (207, GDM, 2 weeks)

Classification and perceived labelling

The women in this study represented a variety of degrees of diabetes, with some perceiving themselves as borderline gestational whilst others were definite type 1 diabetics. The way in which they were classified, particularly women with GDM, had an impact on some women, who felt that it had affected their care, treatment and, ultimately, their birth experiences:

I was tested for GDM due to father having diabetes. After doing numerous blood sugar tests for about 4 weeks, it was proven that I did not have GDM but for the rest of pregnancy and birth, I was treated as a diabetic (58, GDM, 6 weeks).

I had an excellent pregnancy throughout, blood sugar levels and Hba1cs the best the clinic had seen in a long time. My care was excellent; my only disappointment was that they would not let me go over 40 weeks and as a result of being induced I had to undergo an emergency section. I would have liked things to happen naturally as there was no danger to me or my baby throughout my pregnancy (211, type 1 diabetes, artificial milk feeding).

I had an excellent midwifery service and did not fail a blood test until 36/37 weeks. This was enough to stop all my plans of a home birth despite my daily results being within normal limits most times. I felt very disappointed and stuck in medical system. However, my baby decided to arrive 2 weeks early/within 25 mins so I got my home birth anyway. Blood sugar normal postbirth as was babies and that was the end of that (219, GDM, 52 weeks).

One mother summed up her feelings after being induced and having an emergency caesarean:

Future babies will be born by planned caesarean—got over the fantasy of having a natural birth ... I am v. grateful to the staff for getting us here safely but within 1 hour should it have come to that? Was any of it necessary—could it have been avoided? It would not have happened if I had not been diabetic (239, GDM, 10 weeks).

Whether or not the 'less than ideal births' were because the women were classed as diabetics is debatable, but for these women, it was their perception.

Expectations

The difference between expectations and reality was also an issue for some women. After having higher levels of support and monitoring during their pregnancy and being led to expect closer monitoring after the birth, some women were very happy with their care, whilst a number of women were disappointed when it did not happen:

I had a fantastic experience at Derby City Maternity Unit and great advice for my GDM (149, GDM, 12 weeks).

A lot of the unmet expectations related to women's diabetes, but some were related to breast-feeding information and support:

Before my baby was born, I was given information about the possibility of my baby being diabetic and the importance of checking mine and the baby's blood sugar levels. However, once my baby was born, no one checked either of us. There seems to be a gap between the level of care before and after (79, GDM, 16 weeks).

Discussion

This study found that breast feeding rates were relatively high among diabetic woman, for both the whole study group (including GDM) and for women with type 1 or 2 diabetes alone. This is one of the few studies in which a collective picture of breast feeding practices among diabetic women is illustrated with an insight into the reasons why breast feeding is discontinued in this group of women. For some basic comparison purposes, the intention and rates of breast feeding in type 1 and 2 diabetics are included; however, an exclusive analysis of the results concerning different types of diabetic women and factors that may influence breast feeding rates at each postpartum stage will be published separately.

The high incidence of breast feeding in the total study population was evident throughout the postpartum period compared with data from the national general population. It was also higher than the breast feeding rate in the local general population (71% at birth; 60% prior to discharge) (Derby City General Hospital, 2005). Corresponding breast feeding rates (combined mixed and exclusive) for women with type 1 and 2 diabetes were 73.1%, 65.4%, 57.7%, 38.4%, 30.8% and 23%, respectively (Table 4). As expected, the rates of caesarean section, instrumental deliveries and induction in this survey of diabetic women were considerably higher than those in the general population (National Statistics, 2006).

Another important finding of this study was the higher rate of intention to breast feed compared with the national data on type 1 and 2 diabetics (53%) (Confidential Enquiry into Maternal and Child Health, 2005).

This study shows that successful breast feeding is possible for diabetic women, despite higher rates of birth intervention than the general population. The comparative results should be interpreted with caution due to a self-selected sample and a 40% response rate. However, it is reassuring that despite the relatively low response rate, the general characteristics of the study subjects are similar to those for the national data.

The structured care and support initiated by local antenatal services for this group of women in a Baby-Friendly hospital may have played a role in the improvement of breast feeding outcomes in this particular group of women. It may be argued that the respondents represent a motivated group who were sufficiently enthusiastic to participate in this study. This could be counter-argued, in part, as the general characteristics of the respondents are mainly comparable with those for the national data. Other researchers have also reported higher breast feeding rates in diabetic women when a support system is provided (Ferris et al., 1993; Simmons et al., 2005; Stage et al., 2006). The extent to which provision of support interacts with the intention of women in making a decision about type of feeding warrants a separate evaluation. Further investigation is required to evaluate interdiabetic group comparison and analysis of factors that may influence breast feeding practices in each group.

This study also provides an insight into why diabetic mothers discontinue breast feeding. After natural progression, which was expressed by mothers who breast fed for longer periods, the most commonly stated reason for discontinuation of breast feeding was 'perceived lack of sufficient milk'. This is in line with the findings by Hamlyn et al. (2002) and Stage et al. (2006). Without actual measurement of milk production and/or consumption or direct monitoring of baby growth, which is particularly important for diabetics, it is not possible to evaluate the accuracy of this statement. Only two women stopped breast feeding due to poor weight gain in this study. However, in a review of the literature, Sachs et al. (2006) suggested that poor breast feeding technique leading to lack of sufficient milk production or poor understanding of the physiology of breast feeding may be the underpinning factors for 'perceived insufficient milk syndrome'. Ferris et al. (1993) reported inadequate milk supply and greater disease severity in a higher

proportion (33%) of diabetic women; this study had a smaller sample and focused on insulin-dependent diabetic mothers. Thirteen per cent of respondents in the present study mentioned latching problems, which can compound a potential pre-existing hormonal imbalance (e.g. low prolactin levels) (Neubauer, 1991).

The answers to the open questions in this study aid our understanding of women's views regarding the support that they received in terms of deciding how to feed their baby. Most comments indicated appreciation of the supportive information and actual help that the women received during pregnancy and after birth.

However, it is important not to lose sight of an issue of concern (although it was only expressed by three cases), namely support vs. pressure. A delicate balancing act is required to convey the best current evidence regarding types of baby feeding and its impact on the health and well-being of mothers and babies in order to facilitate an effective informed choice.

The provision of advice and information may be, to some extent, at a formal level of consultations and booklets, but also at an informal level including passing conversations and comments. The messages communicated to women have an impact on what they expect, how they perceive their diagnosis, and whether they perceive the breast feeding information as reassurance or coercion. This can also be a two-way exchange, with health professionals listening to women and assessing their needs and how they have understood the information they have received. It is accepted that the giving and receiving of information is a complex process, with women's past experiences and a number of other factors playing considerable roles. However, if health professionals can endeavour to make the information provided as accurate, realistic and appropriate as possible, it may be possible to improve a landmark experience in women's lives.

As it is unlikely that every woman's expectations will be met, it is important to try to meet those we can and to be honest about those that we are unlikely to meet. However, it should be borne in mind that there may be a level of discrepancy between the advice given and what was recalled at the time of the survey. Creating realistic expectations and also the issue of being labelled or categorised in a specific group (although this is done for practical purposes) may have a

negative impact on some individuals. Therefore, respect for individual choices should always be considered at the top of the agenda, especially in cases whose conditions are borderline or newly affected cases, such as women with GDM.

One of the limitations of this study was reliance on the retrospective reflection of women on their experiences. However, for data such as early-pregnancy weight, birth weight or gestational age, double checking against the maternal notes affirmed the reliability of recalled information. Where there was a discrepancy, data from the maternal notes took precedence. For information on the length of breast feeding, intention to breast feed and supporting comments in the open questions, the reliance was inevitably on women's memory. However, it is not envisaged that this influenced the results greatly, as pregnancy, birth and postpartum experiences are major events in women's lives and it can be assumed that their related memories are strongly preserved in their minds.

In conclusion, a high prevalence of breast feeding was evident among the diabetic mothers in this study, most of whom had GDM. This is despite delayed lactogenesis and other complicating factors that may lead to reduced breast feeding capacity in diabetic mothers. Factors identified in this study can be used to develop strategies to further promote breast feeding rates.

Acknowledgements

Special thanks to all of the women who participated in this survey. Also, many thanks to Jean Russell and Apostolos Fakis for their statistical help, and to Rachel Law for her support in collecting retrospective information from the diabetic mothers' database.

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