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EVIDENCE
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Moving midwifery research forward in the revolutionary information and high-tech era

Key words: evidence-based midwifery, doctoral midwifery research society, technology, childbirth

The Department of Health's new consultation paper – *Liberating the NHS: An Information Revolution* (2010) – sets out the new vision for the NHS in which it commits to moving towards a much more sophisticated and integrated information management system. The idea is to connect people with their healthcare information, to 'meet the needs of individuals and local communities, put patients and service users in control, connect systems, provide information to a variety of audiences and promote sharing of information'. This is indeed a revolutionary proposal and I am sorry it was not released before we launched our first Global Doctoral Midwifery Research Society Conference in partnership with the RCM in September when we had the pleasure of an address by Bill McCluggage, deputy government chief information officer for the cabinet. His speech was visionary and focused on a new information era in which the control was shifting from the technologists and administrators to the patient or the mother entering the maternity services. The audience was fascinated he demonstrated with great flair how technology was a power to be harnessed and used efficiently and effectively within the modern NHS. The emerging challenge for midwives, as I perceive it, is to be ready and willing to adapt and change the supporting maternity service infrastructure with appropriate technologies designed with us, and for us, so that we can positively impact on the health and social care we provide to the women we serve. The technologies themselves are challenging and midwives need to be ready to offer maternity care in a world that may become more virtual than real at times. It is important to recognise that today's under-25s are from Generation Y, growing up with the internet and being savvy users of mobile technologies, social networks, smartphone apps, YouTube, 3D gaming, Wii technologies, not to mention the range of search engines providing instantaneous problem-solving.

The midwifery world we live in is changing at a phenomenal rate and we have a global network of young women and young mothers who use the internet as an everyday ritual. The easy access to the web from mobile technologies has made instant access 24 hours a day possible and the quality of handsets and the speed of transition are rapidly evolving. Our computerised systems are so advanced we now have biomechanical models simulating the mechanics of vaginal birth (Li et al, 2010) and we have *Avatar* and *Second Life* virtual worlds in which people can live in an imaginary place, and even give birth there. For example, the Te Wahi Whānau is a virtual birthplace where student midwives can view computer-generated labour and birth scenes. The programme, produced by Second Life Education in New Zealand and PookyMedia, offers students an opportunity to experience normal birth in a replica of the actual birthing

facility. This seductive technology is 3D, *Second Life* technology offering the public an opportunity to leave their ordinary everyday real-life world and live in a virtual world where women can make believe they are pregnant, give birth and become a mother. The games people play can become the realities of tomorrow and it is important for technologists, designers, mothers and health professionals responsible for maternity services to realise the value and potential from 3D innovation and its applicability to the real world in which physiological birth happens.

We are facing a revolution in information and healthcare technologies and it seems like yesterday for some of us who are old enough to remember the headlines when the world's first test tube baby, Louise Brown was born by caesarean at Oldham District and General Hospital on the 25 July 1978. Following the birth of Louise, the floodgates were opened and within 12 months the revolutionary work of Dr Richard Levin in 1979 who was the first person in the world to legalise surrogacy in North America hit the headlines. The possibilities that are offered to us by new technologies are endless, but we need to be proactive and take responsibility for directing and steering the profession to engage in planning for the needs of the new high tech consumer who is at home with technology in every aspect of their working, social and professional life.

I strongly believe midwives can make a difference to the way in which new technologies are developed, applied and adopted in practice. Safe and effective care is a priority for every midwife and human factors and ergonomic tools, methods, concepts and theories are being used to design, test and improve our healthcare systems with signs of innovation and early adoption (Carayon, 2010). The electronic patient record is at our fingertips, the electronic switchcard is virtually in the post and the mobile phone downloads for instantaneous applications to support breastfeeding, antenatal education and labour and birth are already in the clouds waiting for us to dial up, download and pay up. The revolution is already history!

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Pregnancy, motherhood and eating disorders: a qualitative study describing women's views of maternity care

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Abstract

Background. Given that eating disorders (EDs) generally affect females of childbearing age, such conditions may occur during pregnancy. Yet there appears to be a lack of awareness within maternity services on how to manage and support women with EDs and there is limited evidence reflecting women's experiences of such conditions during pregnancy.

Aim. To explore the experiences of pregnant women with an ED and during the early years of the child's life, including their views of healthcare provision.

Method. One-to-one, semi-structured interviews were used to collect data, either face to face or via telephone. Data were explored using framework analysis.

Results. Analysis identified two main themes related to their experiences of midwifery care: professional awareness and type of care offered. Eight interviews were conducted with women at different stages of motherhood. Ethical approval was obtained from a local research ethics committee

Conclusion. The study implied that maternity and other healthcare professionals may lack the awareness and knowledge of EDs in order to provide appropriate, sensitive care, which can then impact on the mother's experience of pregnancy and her behaviours during this period and beyond. Implications for practice and research are discussed.

Key words: Research, eating disorders in pregnancy, semi-structured interviews, eating disorders, pregnancy, motherhood, services, evidence-based midwifery

Background

Maternity services of developed countries have recently started addressing the need for pregnant women to avoid excessive weight gain (Centre for Child and Maternal Enquiries/RCOG, 2010; Heslehurst et al, 2007; NICE, 2010). However, the drive to tackle this important issue impinges on a parallel phenomenon that may have long-ranging consequences for some individuals and their babies – that is, the powerful messages from many sources supporting the notion that ideal body weight equals societal worth (Fay and Price, 1994). The emerging evidence for

maternity services regarding obesity in pregnancy (Centre for Child and Maternal Enquiries/RCOG, 2010; NICE, 2008) does not address how this agenda affects women with an eating disorder (ED).

Over recent decades, EDs have increasingly entered the public's consciousness. They are regularly discussed and often trivialised in the popular media, depicted as no more than dieting gone wrong or overzealous weight loss (Tierney, 2001). But these conditions warrant serious consideration because they bring profound physical and psychological difficulties. Their effects are potentially life-

threatening and can persist for years, ruining individuals' long-term health, their personal and social functioning.

Although they may be regarded as dysfunctional by outsiders, for those living with such conditions can regard their behaviours as an effective coping mechanism against negative emotions, poor self-esteem and low sense of control (Fairburn and Harrison, 2003; Fairburn et al, 2003; Hrabosky et al, 2007). Hence, EDs can assume a functional quality for affected individuals, making them hard to relinquish.

The most discussed EDs are anorexia nervosa (AN) and bulimia nervosa (BN). In both, individuals' self-worth rests on their physical shape, leading to feelings of despair when weight increases (Gleaves et al, 2000). Use of the term 'anorexia nervosa', in itself, is misleading because it literally means nervous loss of appetite, whereas individuals do not lose their appetite, or at least not until starvation is advanced (Bruch, 1973); rather, they ignore their body's needs and suppress their intake, while at the same time becoming increasingly preoccupied by thoughts of food and eating. AN is characterised by an extremely low body weight and a fear of this increasing (Treasure et al, 2010). Those with BN engage in repeated binges followed by compensatory behaviours to regulate their weight, such as self-induced vomiting and laxative/diuretic abuse (Walsh et al, 2000). BN is estimated to be more common than AN and is said to occur at a later age (Fairburn and Harrison, 2003). It can be difficult to detect because individuals look relatively healthy (Walsh et al, 2000).

There is a third broad set of EDs classed as eating disorder not otherwise specified (EDNOS), a heterogeneous group of problems that encompasses approximately half of ED cases (Fairburn and Harrison, 2003). This label incorporates individuals who have sub-clinical disorders – those failing to fulfil one or more of the diagnostic criteria for AN or BN (American Psychiatric Association, 2000). In addition, binge eating disorder (BED) is listed under this umbrella term. People with this complaint differ from those with BN because they do not purge after a binge and tend to be overweight or obese as a consequence. Eating difficulties described as EDNOS should not be regarded as less severe; they can be equally as serious and debilitating as fully diagnosed AN or BN (Walsh and Garner, 1997).

Given that EDs generally affect females of childbearing age, such conditions are possible during pregnancy. In a large, UK-based, community cohort study, approximately 4% of the 12,254 pregnant women involved were reported to have a recent or past ED, mainly of a bulimic type (Micali et al, 2007). Evidence suggests that having an active ED when pregnant can put mother or child at an increased risk of outcomes such as miscarriage, pre-eclampsia, caesarean sections, low birthweight, congenital malformations and postnatal depression (Lacey and Smith, 1987; van der Spuy et al, 1988; Ward, 2008).

A change in shape with pregnancy may aggravate ED symptoms, although this life event can ameliorate such

difficulties; some women improve their eating patterns and other compensatory practices for fear of the adverse impact their behaviour may have on the unborn child (Patel et al, 2002), or because of increased feelings of wellbeing during the pregnancy (Cantrell et al, 2009). Nevertheless, individuals may continue engaging in activities such as dieting, laxative abuse, over-exercising and self-induced vomiting when pregnant (Micali et al, 2007).

The study described in this paper was developed in part because members of the research team were interested in clinicians' responses to women with an ED, due to a lack of coverage of such conditions within current training programmes. It was also conducted in response to the limited evidence reflecting women's experiences of maternity services when suffering from an ED. The authors set out to undertake a study to improve recognition and comprehension of the topic.

Aims

The research aimed to explore the experiences of pregnant women with an ED and during the early years of the child's life. Specific objectives were to understand women's:

- Encounters of pregnancy with an ED
- Perceptions of support provided while pregnant
- Views of caring for a new infant while living with an ED.

This paper provides a descriptive report of participants' views of maternity services. An accompanying article has been written that centres on women's emotional and interpersonal responses to having an ED while pregnant and in the early years of a child's life.

Methods

Design

As the study was attempting to understand the experiences and views of participants, a qualitative design was chosen. This form of investigation strives towards '*the development of concepts which help us to understand social phenomena in natural, rather than experimental settings, giving due emphasis to the meanings, experiences, and views of all the participants*' (Pope and Mays, 1996: 4). Ethical approval was obtained from a local research ethics committee. The research team was interdisciplinary and consisted of one investigator specialised in ED research (ST), a psychologist with clinical and research experience of ED (JF), two midwifery lecturers who had conducted research on mental health and pregnancy previously (CF, CB), and a consultant midwife (ES).

Sample

The target population included women who were a minimum of 16 weeks pregnant or whose youngest child was two years or younger, since the study wanted to explore the views of women during and following pregnancy. To take part, women had to be 16 years of age or older and able to converse in English.

The initial intention was to recruit via the maternity service of a large acute hospital trust in north-west

England. Midwives were asked to give a study pack, with a brief explanation of the research to all women attending antenatal clinic, meeting the criteria listed above. In total, 420 packs were distributed. The pack contained an introductory letter outlining the study, a consent form and a brief screening questionnaire. Women were invited to complete the questionnaire and to return it in a prepaid envelope to the research team if they felt they had an 'eating problem'. This broad term was used in literature provided to potential participants because the authors wanted to attract as wide a group of individuals as possible, including those with and without diagnosed conditions. It was thought that use of the term 'eating disorder' could limit recruitment.

Women who met the cut-off score on the screening questionnaire were contacted by one of the investigators to arrange an interview. This questionnaire consisted of two short tools, developed for use in general practice to spot potential EDs. The first was the SCOFF (Morgan et al, 1999). Women were asked to complete this in relation to how they felt three months before becoming pregnant. The second was the eating disorder screen for primary care (ESP) (Cotton et al, 2003). Women were asked to complete this to reflect their current situation. Answering 'yes' to two or more questions on either of these measures was sufficient for someone to be included in the project. Written consent was obtained from women prior to interview.

Literature suggests women with an ED often experience a sense of shame relating to their condition or fail to acknowledge its severity and, as a result, do not seek treatment (Cantrell et al, 2009). This study demonstrated a poor rate of return from women approached via the maternity service. In total, 28 women sent back a questionnaire. Six had an eating problem as suggested by their screening scores. Three of these six individuals could not be contacted. Another person was not available for interview when telephoned.

Those who responded that failed to meet the screening tool inclusion criteria did not appear to have difficulties with eating/weight, given that they answered 'no' to every question asked; all indicated that they were satisfied with their eating patterns and did not believe their weight affected how they felt about themselves. They were sent a letter from the research team explaining that not everyone who returned a screening questionnaire would be asked to take part because the investigators were looking to include a range of individuals. They were also informed that they could discuss any concerns or queries that may have derived from the invitation to participate with the lead researcher or a member of their healthcare team.

Due to the poor returns from the maternity service and time limits associated with the study, the authors set out to find additional interviewees by posting information about the project on an ED organisation's website (B-eat: www.b-eat.co.uk). B-eat has been used in the past to good effect by the researchers for recruitment purposes. It is a national organisation that can be helpful in reaching

hard-to-access participants. This resulted in eight women contacting the research team expressing an interest and a further six interviews being completed.

Data collection

Semi-structured interviews were used to collect data, which lasted for an average of 80 minutes. Three were face to face and five by telephone. No difference was perceived by researchers in terms of the quality and depth of data collected by these two different modes of communication. All were recorded and transcribed verbatim.

An interview schedule was developed through discussion at a meeting of the research team and included questions such as 'What support have you received from health professionals when pregnant?' and 'What information did you have about diet and exercise while pregnant?'

Given the semi-structured nature of data collection, interviewees were encouraged to discuss their experiences in relation to the study's aims. Concepts within the interview schedule were shared with pregnant women prior to starting the study, to ensure they were comprehensible to potential participants.

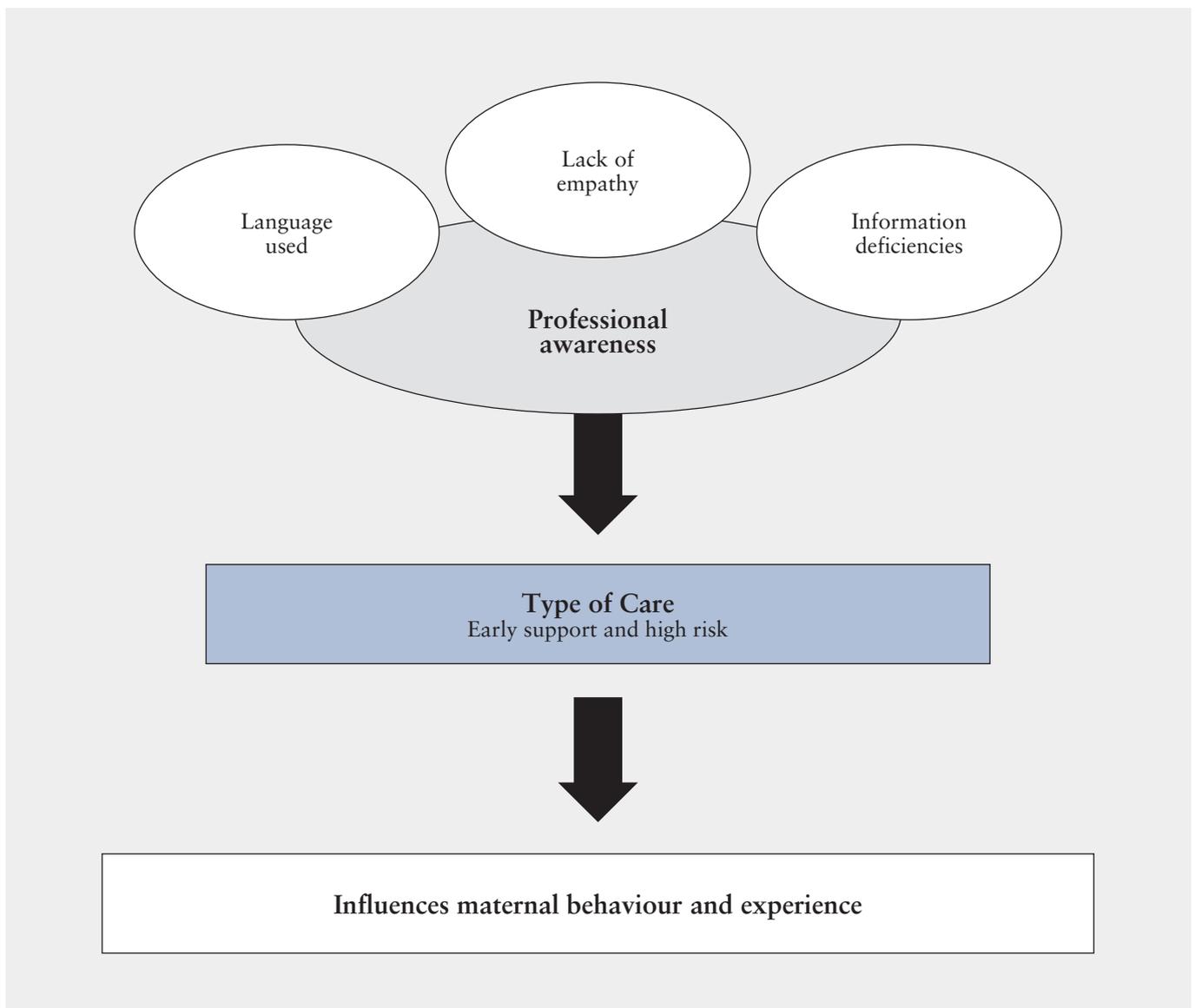
Analysis

Interview transcripts were analysed using a framework approach (Ritchie et al, 2003), a systematic technique that involves the following stages: familiarisation with the data; development of a thematic framework; indexing data; devising thematic charts; mapping and interpreting data. Members of the research team familiarised themselves with interview data and, independently, developed codes. They came together to discuss their codes and to combine these into an indexing scheme, which was used to chart data, a key component of framework analysis. The team then met to interpret data summarised in the charts and to develop themes.

Table 1. Details of participants at the time of interview

Participant	Pregnant or post pregnancy	Age
Int 1	Pregnant (37 weeks)	17
Int 2	Pregnant (20 weeks)	26
Int 3	Post pregnancy (12 months)	37
Int 4	Post pregnancy (24 months)	33
Int 5	Post pregnancy (8 months)	34
Int 6	Post pregnancy (12 months)	29
Int 7	Pregnant (18 weeks)	29
Int 8	Post pregnancy (2 months)	30

Diagram 1. A central theme developed from data analysis related to professional awareness, which influenced the type of care offered and in turn could affect the mother's behaviour and experience of maternity services



Results

Participants lived in the UK and had a mean age of 29.4 (SD 6.1). All had experienced an ED prior to becoming pregnant; for some this continued during pregnancy and after giving birth. Only two individuals depicted themselves as recovered when interviewed. In terms of ED, two had not been diagnosed but self-defined as being extremely restrictive in what they ate, one said she had BN and five AN. Six had received treatment for their ED. Further details of participants are listed in Table 1.

Data suggested that care interviewees received from maternity services had an impact on how these women behaved and felt about themselves and their baby. Two key themes on the role of practitioners and the impact their care can have on a woman with an ED were identified during data analysis:

- Professional awareness – including the sub-themes of

empathy, information and use of language

- Type of care – including the sub-themes of early support and managing high-risk cases.

A conceptual framework (see Figure 1) was developed to illustrate these central themes, which will now be discussed in greater detail.

Theme 1: Professional awareness

Lack of empathy

A central issue emerging from interviews was a lack of understanding among healthcare professionals, as perceived by participants, some of whom reported that staff adopted a dismissive attitude towards them when they disclosed their eating behaviour, or showed little empathy in relation to the impact of their ED on everyday life:

“I saw about six different midwives and they were all

great but none of them knew about bulimia... and then they would ask personal questions... my emotions were quite high so I was a bit taken aback... even the day I gave birth my husband was in the room and one of the midwives said 'Oh, I couldn't be sick, I can't do with that'. So it was shocking" (Int 5).

Participant 3 became upset at how her announcement of being pregnant was received by a psychiatrist involved in her ED care, recalling that this professional asked her on several occasions whether she was sure she wanted to continue with the pregnancy. Likewise, the following interviewee believed her wishes were discounted by a psychiatrist who wanted her to postpone conceiving:

"This frustrated me because I just felt like she wasn't listening to what I was actually saying and then I found out the next day that we were actually pregnant so I had to tell her and she was like really shocked... I don't feel like she really supported my idea of wanting to be pregnant and have a baby just because of my past history" (Int 2).

Certain interviewees were reluctant to disclose that they had an ED to midwifery professionals. Participant 2 noted that shame and the fact that women are supposed to be happy when pregnant made it difficult to admit to having problems. Another refused to inform maternity staff about her eating problems, believing that her condition was 'on pause' during the pregnancy and therefore 'did not apply' to her antenatal care. Her rationale may have masked other underlying fears, such as an anxiety about being criticised, since she continued by saying:

"I'm a professional... I know how people judge you... I might be wrong, but my impression of nurses is that they can be quite judgemental" (Int 8).

This interviewee found it easier to discuss her concerns with a counsellor that she had been referred to for post-traumatic stress following an accident during the early stage of pregnancy. Seeing this professional was the first time she had felt able to talk about her ED with someone outside the family. She depicted this support as vital in helping her through difficulties she experienced during pregnancy in relation to her changing body, adding that it was acceptable to open up in this counselling setting because it was separate from her antenatal appointments. In contrast, others did discuss their ED with midwives and recalled receiving a positive response:

"...they were really lovely actually. They talked to me about issues to do with my depression and said 'we'll keep an extra eye on you because you are predisposed to depression and we find that people tend to suffer after the birth'" (Int 6).

Information deficits

Poor professional awareness was often manifested by the type of responses interviewees received to queries or requests for information. For example, they described a virtual vacuum in terms of nutritional advice. One interviewee had been confused by the information she was given about diet and responded by trying to eat high fat foods:

"I saw the midwife about eight weeks ago now and she'd said she'd found something in my urine that had shown that my body was eating my fat as energy because I wasn't putting any fat on. Me body was just eating it for energy... I was thinking what the hell does that mean?... I wasn't eating enough food that I'm meant to be, like fatty foods I think" (Int 1).

Interviewees often relied on family and friends due to this lack of professional advice, especially early in the pregnancy. In addition, several participants used websites or books for guidance, which could cause confusion due to conflicting messages. Online pregnancy forums were accessed to gauge how much weight to gain but this could make matters worse because interviewees tended to visit these sites to feel better by ensuring they had not put on as much weight as other women who were posting messages. Only participant 8 gained some reassurance from checking what she should be gaining with internet sites, finding that her weight increase reflected what was depicted as the average.

There was some surprise among interviewees that weight was not monitored at antenatal appointments, which was met with a sense of relief. However, those who were also part of an ED service while pregnant did have their weight tracked by professionals. This could have a negative impact on their efforts to eat normally. Participant 7 said she was comfortable with putting on weight if she did not have to see the numbers on the scales go up. Likewise, participant 3 found this hard. She was seeing a dietician as part of her care package who followed a guideline from ED specialists about weight gain in pregnancy, which made this interviewee want to rebel:

"...it was saying well you might gain this much in the first trimester but of course that set me into panicking because I thought 'oh I absolutely mustn't gain any more than that because it means I've been greedy and eaten too much'. And then the fact that I was being weighed every week because I was having out patient appointments, part of it was like a psychological, just wanting to prove them wrong, that you didn't have to gain that much" (Int 3).

Some women controlled their weight during pregnancy through compensatory behaviours, which caused them concern and made them wish for advice about how to carry out such practices in a safe way. For example, participant 8 searched for clear guidance regarding the amount of physical exercise permitted at different stages of pregnancy but found midwives' knowledge on this topic to be lacking; she was simply told to walk. In particular, she wanted information about what level of weight lifting was permitted. She turned to former personal trainers to increase her knowledge but found there was limited understanding regarding physical exercise in pregnancy in this field too.

Language used

Some staff were depicted as thoughtless in the language they used. One person described her ED as being at its worst during pregnancy; she was bingeing, vomiting,

exercising and losing weight. This was not helped by comments from antenatal staff, as she explained:

"...the nurse [midwife] at the obstetrician's clinic said something like 'oh, you don't look like a stick insect' and 'you're much healthier than the overweight mums who eat a lot of junk food' and things like that. I think she meant well but I think it's really unhelpful for someone with an eating disorder to hear things like that" (Int 7).

Another described her experience of disclosing to her midwife that she had an ED:

"...she said 'don't worry, it doesn't matter if you don't eat enough because the baby's the best parasite' ...when I'm struggling with eating enough during the day and my midwife said that it's alright, the baby's fine, it's quite difficult" (Int 2).

She also spoke of her distress if others commented that she looked well, which she interpreted to mean she was fat:

"A lot of people have been saying to me 'oh you're looking really well' and that's one of the ones I find really difficult... I can sort of laugh it off at work but then when I get home that's when I go to pieces" (Int 2).

Even attempts by professionals to be positive about her progress caused this individual distress and prevented her from being open about how she was struggling:

"...my GP... she's very good but... she's very positive so it's hard to talk to her about stuff I find difficult. It's only afterwards that I think I should have really told her about that but I didn't want to because she's so positive... she's very much 'you're entering a new stage of your life and you can leave this all behind you' and it's very hard then to say 'actually I still feel like there's part of me that's still stuck in that behaviour and those thoughts and those worries'" (Int 2).

Theme 2: Type of care

Early support

Access to services was depicted as difficult for some women, particularly in early pregnancy. Participant 2 (who was 20 weeks pregnant when interviewed) said she had not seen enough of her midwife to disclose her problems or to admit that her eating had become increasingly restrictive; she had not seen the same midwife at each appointment. Another felt that the first trimester of pregnancy was a time of great uncertainty for mothers and that there should be better access to midwifery services during this period:

"...the only thing I find about the whole system of pregnancy... is the fact that when you have your first child, or your second, you get ignored until you are three months pregnant... you're not counted as having a proper pregnancy until you've passed that 12 weeks mark. So I've gone up to that point not really knowing what I was meant to do and what I wasn't" (Int 6).

This interviewee feared she could have harmed her child by eating foods in the first few months of pregnancy that she was later warned against consuming (for example prawns) as a consequence of not seeing a midwife, which

caused her considerable distress.

The first trimester may be a time when these women need additional support because they will be experiencing changes in their body (for example, clothes getting tighter), which they depicted as frightening. Some interviewees recalled how they were anxious at first because it felt as though their weight went on quickly, which could make it difficult for them to continue consuming adequate amounts of food. They were also worried at this timepoint that others would think they were fat rather than pregnant:

"...my boobs changed first and automatically I thought 'oh God I'm getting fat'. It was the first three months, you know, when your body starts changing but not enough to look pregnant. So you look like you're getting fatter rather than being pregnant. So that bit was difficult, emotionally" (Int 8).

High-risk surveillance

Women who disclosed their ED or their condition was communicated via the maternity referral were given a 'high risk' label. This was seen as necessary because most had other mental health issues alongside the ED, such as depression, anxiety and self-harming. Having this label meant the woman received frequent hospital care, often seeing different doctors but not a midwife. Some interviewees suggested this put them at a disadvantage in terms of discussing the pregnancy in more detail. Frustration was expressed at the lack of continuity, with staff chided by participants for not reading their medical notes, resulting in the same information being requested repeatedly by different professionals:

"...I mentioned it to the doctor who hadn't actually even read my notes I don't think because I mentioned something about struggling to eat and she said something about eating plenty of fruit and vegetables and I laughed and she said 'do you not like fruit and vegetables?' I said 'no, I don't have a problem eating fruit and vegetables, it's the other things'" (Int 3).

Certain participants expressed a sense of exasperation at the number of appointments they were expected to attend as part of their high-risk management (for example, with the obstetrician, psychiatrist, psychiatric nurse and general practitioner). This frequency of medical encounters was compounded by work and family demands. In addition, one person found that in order to access appropriate services she had to travel some distance:

"...when I became pregnant this time, I'd actually left the day care service and I was going to out patient appointments still, it's quite a long journey, it's 150 miles away, but I was still going up there once a week" (Int 7).

That said, referral to other disciplines could be experienced as beneficial:

"...I got referred to the consultant obstetrician to go under consultant-led care... they were monitoring me every two weeks or so, just to see how I was doing... I think my midwife deliberately referred me to someone she knew was quite sympathetic so I think that really worked in my favour" (Int 4).

As part of their high-risk management, most interviewees had regular scans to check the fetus was growing sufficiently. For some individuals, this made the pregnancy feel more real and prompted them to feel more connected with their child. However, there were a few women who found this part of their antenatal care distressing, as the following quotation implies:

"...I didn't watch the monitor when they were doing the scans. At that point I was self-harming as well. I was self-harming my abdomen... they'd scan me every two weeks... and then that went down to once a week and then it was twice a week and the more they were doing that, the more detached I became because I was just so obsessed about my weight... and because I just felt I was getting really, really fat and I couldn't put up with it. So I didn't really want to see this baby on the screen" (Int 4).

There were some practitioners who made it clear to women that the welfare of the fetus was their priority and that as long as the baby was developing at a sufficient rate, they were not concerned about the ED. This could cause some friction between antenatal and ED practitioners, with the latter also anxious about the woman's health and weight:

"She [obstetrician] was always very happy with the size of the baby and it was always exactly the right size... periodically the [ED doctor] or my GP would be ringing and saying they were worried I was losing weight and she was like 'I don't see why people are worried' because she was saying her BMI was quite low when she'd had her children and it was fine. She was saying 'your BMI's not that low, so why are people worrying?'... It's the sort of comment that makes you feel like you should lose weight... and I think other people were frustrated, like my GP because they're wanting you to think it does harm your baby so you eat more" (Int 3).

In certain cases, this could have contributed to the disconnection some women experienced between their self and their soma:

"I was basically just an incubator. I felt like an incubator that last few months. That's what I had to keep saying to myself, I'm an incubator, and I did, I know people must feel like that but I seriously did. I ate, slept, and that was all I did" (Int 5).

Discussion

This qualitative study involving a hard-to-reach group of women has identified specific difficulties that may arise among mothers who have an ED. Results imply that care of this population could be improved by a greater awareness and understanding of EDs among those working in midwifery services, which this paper hopes to assist with in a small way. Findings suggest an amended approach to some aspects of care is required to accommodate the needs of women with an ED who are pregnant or have recently given birth. This may include extended appointments, motivational approaches to promote behavioural change, additional education about nutrition/changes to body shape and extra support in the postnatal period.

Some EDs are active during pregnancy (Stapleton, 2007) and may have serious outcomes in terms of malnutrition for mother and baby (Ward, 2008). Consequently, healthcare professionals should be able to identify those at risk. However, detecting an ED can be problematic, as women may choose to withhold information from healthcare professionals (Becker et al, 2005; Lemberg and Phillips, 1989) due to shame associated with having such conditions (Hepworth and Paxton, 2007).

It can also be difficult to detect EDs during pregnancy because a number of symptoms parallel those that would be expected during this life stage, including fatigue and morning sickness (Mitchell and Bulik, 2006). In a review of the literature, Ward (2008) advises that midwives ask open-ended questions to provide an environment in which disclosure is facilitated, including: 'How do you feel about your shape and weight?' and 'What is your mood like?'

Women suspected of having a problem may need prompting through sensitive enquiry about food intake, eating rituals, desired bodyweight, as well as assessing compensatory behaviours including self-induced vomiting, laxatives, diuretics, diet pills and exercise (Wolfe, 2005). Likewise, being aware of some of the characteristics of women who experience EDs can help practitioners to identify those in need of support. For example, it has been suggested that further assessment might be warranted when someone presents with a late menarche, poor weight gain in the second trimester, hyperemesis gravidarum, or if the woman discloses a family history of EDs (Franko and Spurrell, 2000).

Being observant when conducting physical examinations can also alert practitioners to clues of a potential ED, such as hypotension, low body temperature, low body fat, pubic hair loss, symptoms of anaemia, tooth erosion due to self-induced vomiting, dehydration or regularly finding ketones in someone's urine (Dotti, 2001).

Knowledge of healthcare professionals

A central concept derived from the study was a lack of professional awareness of EDs and how that, in turn, influenced the type of care women received and impacted on their experiences and behaviours. Some interviewees felt the pregnancy allowed them to care for their body because they put the needs of their baby first, which may also prompt them towards getting help to change their eating behaviours. In such cases, it is vital that healthcare professionals have sufficient knowledge to respond correctly and that they are aware of the different treatment options available. However, women may feel reluctant to raise the issue amid concerns about practitioners' reaction and a general reluctance to evoke negative discussion when the professional is talking in an 'upbeat' manner. Other studies have noted that midwives do not ask about eating issues and that antenatal clinics are not necessarily the best environment to promote disclosure, given a focus during appointments on clinical monitoring and midwives' lack of understanding of ED

(Stapleton, 2007). An insight into such conditions and their implications should include knowing how best to communicate to women on this topic.

Continuity of care

Interviewees in the study tended to suggest it was difficult for them to disclose their ED history to a healthcare professional. Most had seen a number of midwives and this could affect the quality of their relationship. Participants found that seeing different practitioners meant they had to explain repeatedly their condition and were sometimes subjected to thoughtless comments because their maternity records were not read in full. To create an environment of trust and openness for women so they feel able to be honest about their needs, continuity of carer in the antenatal period has been denoted as a priority (Department of Health, 2007). Confidentiality is also important with regards to sharing information about the ED with other disciplines; continued reassurance about being discreet may be necessary. Interview data indicated that some women may develop a supportive relationship during pregnancy with alternative sources, such as counsellors.

Appointments

If a pregnant woman is identified as having an ED, it is recommended that she receives greater time and attention at antenatal visits (NICE, 2004). Once an ED is diagnosed or disclosed, the midwife should offer individualised, ongoing support to the woman in a sensitive, non-judgmental manner. A full assessment of the woman's needs should be undertaken at the beginning of maternity care and assessed regularly (Little and Lowkes, 2000). Cantrell et al (2009) suggest that the length of appointments may need to be altered so there is sufficient time to explore fears, anxieties and triggers for destructive behaviours. They also note that additional discussion may be required if someone discloses or self-harming behaviour is apparent, and that midwives should set out what to expect at each appointment, to help the woman maintain a sense of control.

Gestational weight gain

Weight gain must be approached with sensitivity as it is likely to be a source of great anxiety for those with an ED; any opportunities that do arise around weighing must be handled delicately. Suggested approaches include asking the woman if she wishes to stand with her back to the scales or if she wants to know her weight (Franko and Spurrell, 2000). Cantrell and colleagues (2009) suggest that anxiety can be triggered by comments, even positive ones, about weight and therefore recommend that this is discussed only when absolutely necessary. In addition, they state that conversations related to weight may cause less anxiety, be better received and more effective if emphasis is placed on fetal health. Encouraging mothers to minimise the number of resources they refer to in relation to gestational weight gain (for example, internet

sites) may be helpful since interview data highlighted that this can trigger comparison and further confusion.

Education

It has been proposed that early education is required about somatic changes, cravings and the possibility of morning sickness for pregnant women with an ED (Ward, 2008). Given their increased risk of postnatal depression (Ward, 2008), it may also be advisable for practitioners to provide these women with information about this in advance (Cantrell et al, 2009). Likewise, training in new coping strategies (for example relaxation and controlled breathing) could offer an alternative to managing stress via harmful weight control practices (Cantrell et al, 2009). One means that these women relied on to cope with problematic thoughts and feelings was exercise – advice on this topic was an issue raised during interviews. It has been noted that pregnancy is a time when physical activity tends to decrease (Symons Downs and Hausenblas, 2004), even though healthy women can exercise without risk to the fetus (RCOG, 2006). Organisations promote such behaviour (American College of Obstetricians and Gynecologists, 2002), with guidelines provided on exercising during pregnancy (RCOG, 2006; Society of Obstetricians and Gynecologists of Canada/Canadian Society for Exercise Physiology, 2003).

NICE has recommended that women are informed they can start or continue moderate exercise but that certain activities (for example, contact or high-impact sports) could be dangerous due to the risk of abdominal trauma, falls or joint stress (NICE, 2008). It has been suggested that healthcare professionals may be in a good position to offer guidance about physical activity (Symons Downs and Hausenblas, 2004), but whether midwives feel confident in this role requires investigation. In addition, it must be recognised that many individuals with an ED engage in excessive exercise so may require support in taking a proportionate approach to physical activity.

Robust referral pathways to ED services

The complex nature and co-morbidities associated with EDs and the increased risk of complications in the antepartum, intrapartum, and postpartum periods means a woman may require a multidisciplinary team of specialists to address not only her medical and obstetric needs but also her nutritional, physical and psychological wellbeing (Cantrell et al, 2009). However, being engaged with a range of services can increase the number of medical appointments someone has to attend, which can interfere with daily life. This finding was similarly reflected in research focused on women classed as high risk because of a raised body mass index (Furber and McGowan, 2010).

Accessing appropriate care can also be problematic given the lack of local facilities for helping people with an ED. Even if professional support for the ED is accessed, difficulties may still arise due to a lack of childcare provision or after-hours appointments for women who work (Stapleton, 2007).

Implications for research

Practitioners' views and experiences

Exploration of the educational needs of midwifery practitioners on the topic of EDs and possible ideas for their resolution could be usefully explored in future research. This could then inform training and post-qualification courses and may prompt the discussion of this topic at relevant conferences and seminars. Creation of a website devoted to this topic, open to women and practitioners, may be another source of information, developed by experts in the field to ensure content provided is accurate, up to date and evidence based. Issues covered could include material on exercise and diet, emotional responses to pregnancy, including during the postnatal period, and links to local services that can be accessed for further support.

Women's views of their body during pregnancy

Some interviewees indicated that they felt as if their body was a container for the fetus while pregnant, which could be reinforced when practitioners' main concern appears to be with the growing child rather than the mother's weight. Given the importance that individuals with an ED place on their body size and shape as a marker of self-worth, it would be interesting to focus in greater depth on this topic in future research, possibly by following women throughout pregnancy and exploring how/if their relationship with their body changed during this period. Some form of diary could be used for this purpose to record feelings and views on a longitudinal basis.

Limitations

Only a small group were interviewed, but information provided by those from this hard-to-reach population was rich in detail and contained several useful pointers for midwives unaccustomed to managing EDs. Although the researchers strove and, in many ways recruited, a sample displaying maximum variation, a number of older women were interviewed. Adolescents who become pregnant that have an ED may have different views due to the fact that they are contending with being a young mother and coping with their weight-control practices. They may also not have had such a protracted course of ED compared to women interviewed for this project, most of whom had contended with their ED for over a decade.

Conclusion

The key messages to be taken are:

- Attention is required in maternity services to the needs of women with an ED history
- Language and lack of awareness among professionals of such conditions can have a negative impact on the experiences and behaviours of this group of women
- Joint working is necessary among professionals responsible for different aspects of the care of a woman with an ED during the antenatal and postnatal period
- More awareness of the nature and presentation of EDs could facilitate disclosure of such conditions during pregnancy by women living with difficulties such as AN or BN.

The aims of the study were to provide a deeper understanding of the views of pregnant women with an ED and during the early years of the child's life. Despite difficulties in recruitment, a rich array of data were collected. Analysis highlighted interviewees' experiences of going through pregnancy while also living with an ED, of their perception of support provided and how that impacted on them as an individual and as a mother. In relation to maternity services, the study implied that professionals may lack the awareness and knowledge of these conditions to provide appropriate, sensitive care, which can then impact on the mother's experience of pregnancy and behaviours during this period.

Women who have an ED while pregnant are more at risk of adverse effects and poor outcomes and as such, maternity services need to create an environment that is non-judgemental and is conducive to open and honest discussion. Improvement in the knowledge and awareness of practitioners is key to what type of care is offered to women with an ED.

Additional referral and support from other disciplines is crucial for ensuring long-term wellness, as is continuity of carer. Pregnancy may give someone the impetus to change her behaviour, because of a concern for the child's welfare. This should be encouraged and built upon with continuing support into the postnatal period.

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Grading midwifery practice: a discourse analysis

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Abstract

Background. In 2009, the NMC published new guidelines for pre-registration midwifery education that included an all-graduate profession and grading of practice. It is acknowledged by the profession that the grading of clinical practice may be problematic.

Aim. The pedagogy of grading midwifery practice was explored using a discourse analysis of the documents pertaining to the regulation of pre-registration midwifery education.

Objective. To construct a discourse on grading midwifery practice supported and informed by published interprofessional literature.

Method. The analysis of the data (the text) was examined using a blend of two theoretical positions: Fairclough's critical discourse analysis and Bernstein's pedagogic device.

Findings/results. The findings from this discourse analysis were that the pedagogic perspective of grading midwifery practice was limited in several ways. Firstly, the textual analysis/instructional discourse concluded that grading practice was problematic and how much of this grade counted towards the degree classification was unstated. Secondly, the discourse practice/regulative discourse or the ways texts are produced, distributed and consumed and layered one upon the other is not cohesive and therefore the exact regulation as to who grades midwifery practice is not explicit enough within the documentation. Lastly, the social practice/pedagogic device examined the relationship between both the regulatory and instructional discourses thus how, by whom and what contribution this grade makes to the degree classification is open to interpretation, and hence different for each higher educational institution, teacher, sign-off mentor and student.

Recommendations. There is a need to review the current practice of grading and disseminating best practice, the NMC standards to support learning and assessment in practice explicitly for the midwifery profession, and to establish an ongoing dialogue with all parties involved in grading midwifery practice.

Key words: Discourse analysis, grading practice, assessment, pre-registration midwifery education, evidence-based midwifery

Background

Pre-registration midwifery education in the UK is based in universities. Students have supernumerary status and are required to complete 2300 hours in theory and 2300 hours in practice over the three years of their course, if they do not already hold a nursing qualification. In 2009, the NMC published new guidelines for pre-registration midwifery education that included an all-graduate profession and grading of practice.

Grading of practice is not uncommon in other healthcare education programmes. References have been found in nursing (Watson et al, 2002), dentistry (Taleghani et al, 2006), physiotherapy (Clouder, 2005; Coote et al, 2007) and medical education (Feeley et al, 2003), but none are without their problems. Common published issues include inter-rater reliability (Lewis et al, 2008; Baulcomb and Watson, 2003), reliability of a grading tool (Coote et al, 2007), validity of grading assessment (Clouder, 2005) and students' confidence in grading (Calman et al, 2002).

Smith (2007) studied clinical competence grading in midwifery education, and four themes emerged in her thematic analysis: competence versus ability, the ability of the midwife to grade the student, the grading process and the social processes of the assessment. Although this research used a small cohort of midwife mentors in one locality, it theorises many elements common to other interprofessional healthcare grading assessments.

In an effort by some researchers to evaluate their grading

practices, some recommend the use of rubrics (Isaacson and Stacy, 2009; Nicholson et al, 2009; Lasater, 2007), portfolios (Smith, 2007) and tripartite meetings (Doughty, 2007), which have all been proposed as robust systems for grading students. There is no one definitive tool that is a panacea for grading practice. Many found grade inflation an issue (Hemmer et al, 2008; Cacamase et al, 2007; Coote et al, 2007; Gill et al, 2006) regardless of the tool used.

There are relatively few papers published on grading midwifery practice using discourse analysis. Therefore this paper explores the pedagogic value of grading midwifery practice using discourse analysis based on a critical review of the relevant NMC policy documents.

Ethical approval was not needed for this research, as it did not involve human participants. Neale (2009) categorises this form of enquiry as desk-based research and as such there are fewer ethical considerations as the policies referred to already exist. This research was self-funded and undertaken as part fulfilment of a masters' degree in interprofessional healthcare education.

Discourse analysis

Neale (2009) states discourse analysis is a suitable methodology to analyse policy documents. van Dijk (1990) concurs pointing out that since education documents and policies are mainly textual, more insight into the processes and structures or discourses produced will increase our understanding.

Gee (1999) argues that discourse analysis is both a method and a methodology, and as with any method always has a theory. Neale (2009) argues it is not a research method, but rather a process of uncovering meaning. Saarinen (2008) suggests discourse analysis is both theoretically and methodologically appropriate to examine higher education policy. However, Tight (2003) cautions researchers, since so much in education is text or document based, there might be the assumption that research in higher education frequently uses documentary analysis, when in fact they just read the documents and apply the contents to their work, in doing so they have not used a methodology or guidance that discourse analysis can offer and have not analysed them in a systematic fashion. To be thorough, van Dijk (1990) agrees with Tight (2003) that discourse analysis should be systematic, both form and content need to be examined.

Thus a blend of two discourse theories was used to examine the policy documents (NMC, 2008 and NMC, 2009) systematically. Bernstein's pedagogic device (1996) and Fairclough's critical discourse analysis (1995) were combined to undertake the analysis.

Bernstein (1996) presents a theory of instructional discourse and regulative discourse and the relationship between the two create a pedagogic device. The instructional discourse is how knowledge is transmitted and acquired whereas the regulatory discourse is concerned with social order and identity. The examination of voice, dominant forces and decision-makers in the regulative discourse controls the instructional discourse. The pedagogic device can be broken down into three areas: the production, reproduction and relocation of discourses (Bernstein, 1996). The production of the text informs the agencies that apply the text and reproduce it and then how this informs the practitioners in how they deal with the product in practice. In relation to grading midwifery practice, the texts or standards are produced by the NMC, the agencies informed by these texts are the higher education institutes (HEI) when they interpret the text and write curricula. The practitioners who are informed by these texts are the sign-off mentors and teachers in midwifery who transmit and assess knowledge to and from the students.

Fairclough (1995) uses critical discourse analysis as a way of demonstrating how language is embedded in social relations and processes. He sees discourse as a complex system with three parts: textual analysis, social practice and discourse practice. He calls for an analysis of all three areas and how they interrelate in producing a discourse.

Textual analysis/instructional discourse

Textual analysis is both linguistic analysis and intertextual analysis (Fairclough, 1995). Linguistic analysis is an examination of the grammar, the sentence and vocabulary. Intertextual analysis examines the texts and the discourse behind the text. Instructional discourse (Bernstein, 1996) is concerned with the transmission (transmitted by the sign-off mentor) and acquisition (acquired by the student) of specific competencies or skills.

The analysis of the text began by looking at the verbatim sentence on grading practice in the NMC (2009) document in

accordance with Gee's theory of '*grammar in communication*' (1999: 149) and Halliday's (1994) theme and rheme of sentence structure. The NMC (2009) document consists of 68 pages, there are 14 words detailing this major change. The 14 words are: '*Clinical practice must be graded and be counted as part of the academic award*' (NMC, 2009: 17).

The clause is the crucial unit (Halliday, 1994). This sentence is two clauses long, since there are two verbs. The two verbs in the NMC sentence are graded and counted. The theme is usually identified as the initial part of the clause, whereas the rheme is the latter. Thus the theme is that clinical practice must be graded and the rheme is that it should be counted towards the degree classification. According to Woodside-Jiron (2004), this particular type of writing – policy genre – where new information is given and linked to more familiar information is presented as a *fait accompli*. The new information in this case is two fold – midwifery practice has been assessed, as competent or not, for the last decade (UKCC, 2001), but now in addition to this assessment of competence, it needs to be graded. The second point is that this grading needs to have a numeric value to be counted as part of the academic award. These two points will be explored further.

The structure of the theme and rheme can also be examined (Halliday, 1994). The theme is considered more important than the rheme, because it is at the beginning of the sentence; it is presented first. So this implies the grading of clinical practice is more important than the counting towards the academic award. The new information proposed by the theme: assessing clinical practice and the assumed link between competence and grading practice must have been developed somewhere, so previous NMC documents were searched to find where this idea was generated.

The linguistic analysis offered here is presupposition. Presuppositions are a presentation of an argument in a persuasive way in order to demonstrate a particular idea (Saarinen, 2008). The preposition examined here is in the NMC (2006) consultation document, which introduced the idea of grading midwifery practice. A number of questions were developed by the NMC to explore stakeholders' attitudes about a variety of proposed alterations to the existing pre-registration midwifery education. Under the heading '*assessing competence*' (NMC, 2006: 32), stakeholders were asked whether they agreed that practice should be graded. The presumption here is that there is a link between assessing competence and grading practice.

Bernstein (1996) distinguishes between two different models of pedagogic practice – competence and performance. He defines competence as '*practical accomplishments*' (Bernstein, 1996: 55), which cannot be assessed outside the context in which they are practised. Performance, on the other hand, is the extent to which the student meets a given criteria. They are two separate forms of assessment. Bernstein (1996) believes that competence cannot be assigned a grade, a student either can complete the practical accomplishment or they cannot. They therefore pass or fail the competence. Performance on the other hand could be graded. Both the sign-off mentor (transmitter) and the student (acquirer) know and understand the grading criteria

and the performance of the student is awarded the grade commensurate with how well that student meets the known criteria (Bernstein, 1996).

In practice distinguishing between competence and performance is problematic. Smith (2007) reported considerable confusion among midwives between the assessment of competence and performance, despite clear criteria. Interprofessional research by Maxted et al (2004) concluded that there is considerable confusion between the terms 'competence' and 'performance'. In their literature review focusing on workplace assessment, various healthcare professions were considered. Maxted et al (2004) concluded that no single method of assessment can adequately measure competence and/or performance. Thus Bernstein's (1996) theory that the two – competence and performance – are separate, is in practice hard to differentiate.

Wolff (2007) offers a discourse on grading. He defines three types of grading: criticism, evaluation and ranking. Criticism, when used to assess complex matters, such as health care, is bound up in arguments over style. A mentor who has one style may prefer the student to adopt a similar style, commensurate with the mentors own normative values. Some sort of evaluative standard may be implicit in the criticism grade, but not always.

Evaluation, the second type of grading, is the measuring of a performance against a standard of excellence. The mentor attributes a grade that expresses their judgement of the performance of the student. It is possible to discriminate, according to Wolff (2007), between pass and fail grades, that is acceptable or unacceptable performances, but not to provide a linear scale of grades from 0 to 100 as this is too fine a measurement for accurate discrimination.

Ranking is the third grading activity where a mentor compares this student to their last and considers the performance of this student on the merits of the predecessor, which is whether this student is better or worse than the last. This grading does not allow the mentor to demonstrate how much better this student is and should not be used in healthcare education, since we should value each individual student on their own merits against set criteria and not compare them to others.

Wolff applies this philosophy stating that evaluation is at the heart of professional practice (Wolff, 2007). The student's performance is judged to have met the minimum standard, thus protecting the public and a pass means the healthcare student can enter the professional register, fail means they cannot. Wolff suggests that since most professions are now degree educated, we should dispense with grading of practice and award the degree and eligibility to enter the profession upon meeting the standards alone. This is in direct contrast to the instructions of the NMC (2009) document. Duffy (2003) would disagree with Wolff's (2007) definition of grade evaluation. She noted that mentors were sometimes unable to distinguish between competence and incompetence and therefore failed to fail the students whose competence was questionable. Fraser et al (1997) also found similar problems in midwifery; mentors voiced concerns to lecturers but still passed the student competent to practise. Failing to recognise

incompetence is still problematic (Gainsbury, 2010). It is also, a form of grade inflation, since the incompetent student has their skills assessed above their actual level.

The rationale behind grading was to demonstrate an 'equal value' between theory and practice, by assigning a grade to practice and counting this, in the same way as an assessment of theory, towards the degree classification (NMC, 2006: 50). Thus we reach the second point to be considered – how this grade contributes towards the academic award. The instruction from the NMC (2009) is that the practice grade only has to contribute towards the degree classification; it does not state that it needs to equate to half the award.

In the NMC (2006) document, the panel of stakeholders agreed that further work would be undertaken in relation to how grading of clinical practice via education providers could be implemented – the work was stated as being in progress. Not only has this work not been disseminated, but grading has apparently been implemented without evidence.

Thus, this is where the textual analysis/ instructional discourse ends – '*clinical practice must be graded*', but how this grading is undertaken is not specified (NMC, 2009: 17). The grade must '*be counted as part of the academic award*'; however, how much of the grade should contribute to the degree classification is not explicit (NMC, 2009: 17). How the well documented problems of assessing practice as opposed to competencies and assigning a grade affect the degree classification or protect the public needs further exploration.

Discourse practice/regulative discourse

Discourse practice is defined by Fairclough (1992) as the process by which texts are produced, distributed and consumed. How policies are layered one on top of another helps to shape the cohesion of policy (Woodside-Jiron, 2004). Regulative discourse '*is concerned with the transmission of principles of order, relation and identity*' (Bernstein, 1996: 211). Thus how the different NMC documents pertaining to midwifery education are layered together helps to create the curriculum and how this is regulated, maintains order and reinforces identities.

The NMC (2009) document, which sets the standards for pre-registration midwifery education, needs to be read in conjunction with the NMC (2008) text that regulates who is responsible for student learning and assessment. Saarinen (2008) suggests analysing social actors within policy texts is helpful in discourse analysis. The social actors within these texts in relation to pre-registration midwifery education are sign-off mentors and teachers. The NMC (2009) document is explicitly written to be distributed and consumed by midwifery educators, whether they are teachers or sign-off mentors, but the NMC (2008) document, which supports the former text is a generic document written for distribution and consumption by two professions: midwives and nurses. The fact that this NMC (2008) document is consumed by more than one professional group is problematic, because generic as opposed to specific terms are used throughout and these are open to potential confusion. Since the NMC (2008) standards were produced to support easier '*application in practice*' (NMC, 2008: 1), I suggest they should be profession

specific to increase their application to practice.

The assigned roles or identities in the generic NMC (2008) document come under three titles: mentor, practice teacher and teacher. The generic NMC document (2008: 29) states that *'midwifery education requires only mentors and teachers'* – this is inaccurate. The NMC document (2009: 17) clearly states that a student midwife shall be *'under the supervision of a sign-off mentor'*. *'Assessing proficiency requirements'* are detailed (NMC, 2008: 21) and the documents specifies that mentors should be able to assess *'a student performance'* and deem whether the student has passed or referred in practice (NMC, 2008, p.32). This is a competency not a performance and as such there is no mention of grading practice.

The role of a midwifery sign-off mentor is different from a nurse sign-off mentor (NMC, 2008), since the midwifery sign-off mentor is responsible for stating that the student is safe to continue at each progression point yet the sign-off nurse mentor is only responsible in the final placement, before the student enters the professional register. Therefore, to avoid confusion I would suggest the document is re-written to reflect the needs of the three areas of NMC practice, nursing, specialist practice and midwifery, since they all have distinct differences and regulations. There is no intertextual cohesion between the two NMC documents (2008, 2009).

The quality of the student practice learning is dependent upon the regulative discourse. The transmitter has to learn to be a transmitter, or a sign-off mentor, the acquirer has to learn to be a student (Bernstein, 1996). After a while in practice, the student begins to talk like the sign-off mentor. The sign-off mentor teaches the student to talk like a midwife. For Bernstein, it is the process by which the sign-off mentor teaches the student that establishes order and identity. This is also regulated by the sequencing or pacing of practice, the sign-off mentor decides what care to allow the student to participate in or provide according to their level of training or previous competencies. Lastly the acquirer, the student, is required to take over the practice and provide his/her own care – in healthcare education, this is upon registration. The quality of practice learning is thus influenced by how the sign-off mentor performs, whether they use appropriate midwifery terminology, whether they control the pacing or sequencing of the student learning and their interpretation of the students' competence. This in turn affects the quality of the newly qualified midwives.

Armstrong (2010) noted student midwives felt they were exposed to two dissimilar cultures: theory and practice. The students were influenced by their mentors in practice even if their mentors' practice was not evidence based. The students used their lack of status to justify their behaviour and felt that not fitting in could jeopardise their clinical assessment or chance of employment. Armstrong's (2010) study demonstrates how sign-off mentors reproduce the current workforce instead of a creating an empowered newly qualified midwife.

The discourse practice or regulatory discourse is thus that the NMC has the power to regulate the professions, primarily to protect the public. Texts such as the NMC

(2008) and NMC (2009) shape the way the midwifery profession regulates itself.

Social practice/pedagogic device

The pedagogic device is the relationship between the regulative and the instructional discourses (Bernstein, 1996). For Fairclough (1992), social practice is how the discourse is informed on three levels: the local, institutional and societal level. The local level is the text, and how this influences institutions such as the HEI and then society or the profession. Locke (2009) suggests research, policy and practice all have to combine to look forward to the future in higher education and this is one area where the three domains need to work together.

There seems to be a change in discourse from theory-led to practice-based midwifery education. Firstly, the change in split of theory to practice. For some time, this has been 50% for each, but the NMC (2009: 16) now states that practice is *'required to be no less than 50% and no less than 40% theory'*. It demonstrates a potential change of culture in midwifery education where hands-on care and practical skills could be seen as more important than theoretical knowledge, despite the rise to an all-graduate profession. Secondly, along with the balance of theory to practice change, the status and accountability for sign-off mentors has increased (Fisher, 2009). Thus sign-off mentors now have more responsibility for assessing students' progression.

Although the instruction from the NMC is that practice must be graded and the regulation is that teachers and sign-off mentors are responsible for the education of pre-registration midwifery students, the NMC have not prescribed exactly how HEIs must grade practice or by whom. Thus HEIs have the power in the way they choose to interpret the NMC policy, but this power is bound in another regulatory discourse, the *'fitness for award'* whether the student demonstrates the appropriate depth and breadth of learning commensurate with a degree. It is nevertheless up to each HEI to interpret the NMC (2008, 2009) standards to create an educationally sound curriculum balancing all the instructions and regulations.

The suggestion by the NMC (2009: 18) that the assessment of practice could involve *'a variety of components'*, may in fact be the norm rather than the exception as many educationalists try to manage the tensions between the regulatory discourse and institutional discourse. HEIs may consider the risks of grading practice to be higher than assessing assignments for instance, which can be double-blind, marked and externally assessed (Quality Assurance Agency for Higher Education, 2006) to ensure quality. Whereas grading of practice by sign-off mentors may not be as rigorous as this is due to issues of inter-rater reliability and grade inflation. The suggestion of a variety of assessments may assist in reducing the impact of grade inflation on the academic award or it may be because there is not one single perfect assessment tool. Norman et al (2002) suggested a multi-method UK-wide strategy for assessing competence in midwifery and nursing programmes. As few students fail in practice, any one tool's ability to discriminate between competence and incompetence is difficult to test.

The social practice of grading and the pedagogic worth in

professional practice were studied by Gray and Donaldson (2009). They attempted to develop a national approach to practice assessment for midwives and nurses in Scotland. Challenges to grading practice were expressed as time constraints, consistency and accountability of assessors, which are issues for all practice assessments not just grading of practice. But specific to grading were the issues of validity and reliability of the tool used and inflation of grades. Their work suggested solutions to grading practice in the use of multiple methods for assessment and the development and evaluation of rubrics. Rubrics should be made up of three components: clearly defined performance criteria, descriptors of what each performance looks like for each level and a rating scale with three or four points. This would for Bernstein (1996) reinforce the norms and increase control of the students.

NHS Education for Scotland (2008), in a review of Scottish midwifery and nursing curricula, noted that variation in assessment is usually seen as good, but it can cause inequalities in student workload. These inequalities may potentially influence students' decisions on where to study, choosing perhaps the lightest assessment load. They believe the time is right to advocate a national approach to midwifery and nursing practice assessment. They are not concerned about the variety of theoretical assessments, but believe practice assessments should be consistent. Pinar (2004) would argue, that he already suggests educators have lost control over the curriculum they teach by all the governmental and other policy drivers. If a consistent practice assessment tool were introduced, this would be one more aspect of the curriculum that would be prescribed. The Department of Health (2009: 24) suggests there may need to be a '*single, common assessment tool*' in midwifery education. Maybe defining the amount of practice that counts towards the midwifery award would ensure consistency? So long as HEIs ensure the assessment meets the regulatory bodies' standards and it is analysed in relation to marking trends as suggested by the Quality Assurance Agency for Higher Education (2006), the decision should remain with the HEIs. They are the experts in education, not the NMC, and as no single tool has yet been validated as reliable, this is not an educationally sound proposal. However, in physiotherapy education in Australia, a national, valid and reliable tool has been implemented (Dalton et al, 2009), so this may be realised in pre-registration midwifery education in the future.

To summarise, the social practice/pedagogic device has considered the relationships between regulative and instructional discourses. Discussion has focused on how institutions have interpreted the NMC (2009) texts and written the curriculum implementing the most appropriate assessment strategies available to them, but ultimately regulated and controlled by the NMC.

Conclusion

The pedagogic perspective of the document (NMC, 2009) pertaining to grading practice is not explicit – the NMC is a regulatory body, not an educational establishment. The NMC exists to primarily protect the public, how grading protects the public is not specified, the NMC have not justified their

position on grading, nor have they produced the promised further guidance for educationalists on how best to implement grading of practice.

The pedagogy of grading practice, however, which includes the curriculum, the transmission and evaluation of knowledge and the evaluation processes, is limited in several areas. The curriculum is written by the HEI, not the NMC documents. The NMC documents regulate the profession, but do not state what needs to be taught or how that knowledge should be assessed, although there are some areas where knowledge is defined. There are some assessment methods that are mandatory, but the timing and order of these assessments are interpreted by the HEI. What is implied is that the assessment of practice seems more important than the contribution this grade makes towards the academic award.

The evidence to support grading practice is weak; how best to grade practice is at present unknown (Gary and Donaldson, 2009). The literature suggests grading practice is under researched and needs further evidence to support it. Who undertakes this practice assessment and what exactly is evaluated is open to interpretation. That each HEI can interpret the NMC policies creating variation in assessment processes, may lead to inequalities, perhaps more instruction on what exactly should be assessed and how much this should contribute to the academic award is needed. Lastly, grading practice might contribute to reproducing the current workforce, whereas the profession needs to be equipped to meet the challenges of the future.

Recommendations

Three recommendations emerge from this work. Firstly, the instructional discourse concluded that although grading practice is statutory, how much of this grade contributes towards the degree classification and how to grade practice is not explicit. Promises were made by the midwifery committee (NMC, 2006) that more work on grading of clinical practice would be done and updates posted on the website, but this is not apparent, so the recommendation is that grading needs to be evaluated urgently and best practice disseminated.

The regulatory discourse concluded that the lack of intertextual cohesion between the documents pertaining to pre-registration midwifery education was problematic. A second recommendation is that the NMC should revise their standards (NMC, 2008) to be profession specific with separate documents for each part or sub-part of the register. Thus the document pertaining to the midwifery profession will explicitly reflect grading practice and be designed for sign-off mentors and teachers.

Thirdly, the pedagogic device needs to be further explored; the relationship between the instructional and regulatory discourses, how these affect the local, institutional and societal education of pre-registration midwifery education need to be part of an ongoing evaluation. A third recommendation, that of a collaborative dialogue with policy-makers, namely the NMC, educators, practitioners and students should ensue. As Locke (2009) says, this may be ambitious, but to improve the use of research in policy-making and practice, engagement in communication between all parties is one way to take higher education forward.

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Effective skin-care regimes for term newborn infants: a structured literature review

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Abstract

Background. There is a lack of empirical data on the impact of commercially available products for washing healthy newborn skin and therefore midwives, health visitors and others who advise new mothers have little evidence to inform best practice.

Aim. To assess published evidence of the effective skin-care regimes for healthy newborn infants to inform guidelines for midwives and other health professionals who advise mothers. Two questions were posed: is there evidence to support the advice not to use commercial wash products for healthy full term infants in the first few weeks of life and is there evidence that commercial wash products cause skin dryness or water loss when compared to washing with water only?

Method. A systematic literature search of MEDLINE, CINAHL, AMED, for the years 2000 to 2010 using key terms related to newborn skin care, identified nine studies. After examination of the full papers for each, two were deemed eligible for inclusion in the review.

Findings. The overall number of subjects was too small to conduct meta-analysis so a qualitative review was conducted. The results of the two studies were considered in relation to skin moisture levels (transepidermal water loss (TEWL)), skin pH levels and age of infants. Both studies showed decrease in skin pH where bath gel was used however one reported a return to baseline levels within one week. Although the studies show standardised measurements in TEWL and skin pH, other measures such as dryness and scaling use variable measures. The time between intervention and measurement was not comparable between the studies.

Conclusion. This review demonstrated neither harm nor benefit from the wash regimes using water alone and commercial wash products. The evidence base is not yet strong enough to produce definitive guidelines for health professionals.

Key words: Newborn skin, skin-care regimes, bathing, baby bath products, literature review, evidence-based midwifery

Introduction

The skin is regarded as a protective barrier that prevents infection penetrating the body and loss of water (Holbrook, 2000). Full-term infants should have a fully functioning protective skin barrier and the aim of skin-care regimes should be to maintain the integrity of this barrier. Little is known about the impact of commercially available wash products and therefore midwives, health visitors and others who advise new mothers have little evidence on which to draw when advising on the use of products for washing newborn skin.

Professional debate has been divided between the use of water only (Trotter, 2004) for skin cleansing in the early weeks and mild pH neutral products manufactured specifically for term newborn skin (Hopkins, 2004).

Current guidance

The NICE guidance on postnatal care gives the following advice on infant skin care: '*Parents should be advised that cleansing agents should not be added to a baby's bath water nor should lotions or medicated wipes be used. The only cleansing agent suggested, where it is needed,*

is a mild non-perfumed soap' (NICE, 2006). There is no empirical evidence cited to support this assertion. The guidance is a good practice point based on the collective experience of the expert guidelines group.

A systematic review (Walker et al, 2005) to assess whether soaps or detergents in bath water was associated with dry skin for term infants and was based on data from two studies. This review was excluded from the present study because it included preterm infants. In their conclusion, Walker et al (2005) recommended further research and stated the importance of reporting system reviews even when there was no forthcoming evidence to guide practice.

Steen and Macdonald (2008) reviewed a range of literature with the aim of producing guidelines for midwives, concluding that there was still a lack of conclusive evidence about the benefits of water only or wash products for newly born infants. Neither harm nor benefit was demonstrated by the literature reviewed. They developed a good practice guide to help midwives discuss the relevant issues such as frequency of bathing and bath temperature. They advised the use of water only for the first two to four weeks followed by the use of pH neutral mild cleansers manufactured for babies.

Lund et al (1999) reviewed the literature to produce evidence-based guidelines primarily for preterm infants in neonatal units in the US. They conducted a trial published in 2001 based in 51 US hospitals, which tested the guidelines, based not only on washing, but a number of other interventions such as handling, positioning, the use of tapes and skin probes, and found that skin condition was improved following implementation of their guidelines. These guidelines, which were updated in 2007 (Lund et al), have been widely adopted in the US and by UK neonatal networks to provide care in neonatal intensive care units (NICUs).

In 2007, the first European roundtable meeting of expert paediatricians and dermatologists was held to discuss best practice for infant cleansing, and published guidelines based on their discussions and a review of the literature (Blume-Peytavi et al, 2009). The expert panel recommended the use of commercially available liquid cleansers as being as effective as water alone and more effective in removing faecal and urine residues. The use of soaps was not recommended because they alter skin pH and lipid content of the skin resulting in drying and irritation. Although large numbers of studies are cited, there was no attempt to systematically review the literature or meta-analyse the results. They concluded as follows: *'Bathing is generally superior to washing, provided basic safety procedures are followed, and has psychological benefits for the infant and parents. When bathing infants with a liquid cleanser, a mild one not altering the normal pH of the skin surface or causing irritation to skin or eyes should be chosen'* (Blume-Peytavi et al, 2009: 751).

A recent qualitative study conducted by Lavender et al (2009) reported some confusion about the evidence base

among health professionals. They found, in interviews with midwives and women that individuals used their own experience and other forms of knowledge to make decisions about using commercial preparations for infant bathing and washing. Although debate has centred on the potential disruptive properties of the commercial wash products on the skin barrier such as drying or skin irritation, little attention has been paid until recently to the properties of water itself.

Lavender (2009) cites several sources to posit the argument that water itself may be disruptive to the acid milieu of the skin and therefore water alone is not an adequate cleanser. Generally accepted practice appears to be that for the first two to four weeks, babies should be bathed only two to three times per week using water only.

Newborn skin

The skin layers include the epidermis, dermis and subcutaneous layer. Human skin barrier development begins in the first trimester in utero and continues with the development of epidermal cells. The stratum corneum starts to develop around 24 weeks, epidermal layers and thickness increase until term and vernix develops as the final step in maturation of the skin barrier in the third trimester (Holbrook, 2000). The function of vernix caseosa is thought to prevent maceration by amniotic fluid and damage to the skin as space becomes restricted for the growing fetus in the uterus (Lund et al, 1999). It is also understood to interact with the developing epidermis facilitating formation of the stratum corneum (Visscher et al, 2005). Differences between term newborns' and preterm babies' skin can be seen to include the appearance in preterm infants of thin transparent skin due to the presence of fewer layers of stratum corneum.

The barrier function of the stratum corneum is important in extra uterine life for the regulation of water balance in the body; it inhibits infection penetrating the body via the skin and prevents toxic substances being absorbed (Chiou and Blume-Peytavi, 2004). Stratum corneum is frequently likened to a brick wall with the corneocytes as the bricks and the lipids acting as mortar (Elias, 1996). Stamatas et al (2010) produced clinical data demonstrating that newborn skin has an epidermis 20% thinner and stratum corneum 30% thinner than adult skin, concluding that baby skin is more permeable and prone to dryness.

Debate about when the stratum corneum is fully developed in infants has been a feature of paediatric dermatology literature (Visscher et al, 2001; Chiou and Blume-Peytavi, 2004; Nikolovski et al, 2008). Until recently, it was believed that maturity was reached at or soon after birth. A study by Nikolovski et al (2008) demonstrated that stratum corneum development continues throughout the first year of life.

Atopic dermatitis

Breakdown in the function of stratum corneum is indicative of atopic dermatitis and therefore the aim

of all skin-care regimes in the newborn is to maximise and stabilise the function of the stratum corneum. The incidence of atopic dermatitis appears to be on the rise with 20% to 25% of children affected by the condition by the age of three months (Spergal and Paller, 2003 (cited in Blume-Peytavi, 2009); Cork et al, 2006). There are a number of theories put forward to explain this rise, but in the main, environmental and genetic factors are thought to play a part. Many of the theories and hypotheses are under scientific investigation so the causative influences are not yet known. However, it is known that children with a family history of atopic dermatitis are at increased risk (Cork et al, 2006).

The importance of skin pH levels is highlighted by Cork et al (2008). The normal process of skin development in the newborn is that skin becomes gradually more acidic within the first few weeks of life. This acid mantle is considered important in protecting the skin from soil and chemical insult. In children with atopic dermatitis, the skin pH is more alkaline (Cork et al, 2006).

Adam (2008) considered nappy rash or napkin dermatitis as it is sometimes known, and recommended that any product used in cleansing should have properties that restore natural skin pH and avoid an irritant effect. Soaps traditionally have high pH content and contain calcium and magnesium, which can leave irritating traces on the skin. He found that water alone is not effective in cleansing because it leaves traces of skin contaminants from urine and faeces and water cannot correct the pH of the skin. The cloths used with the water may have abrasive properties, which may damage the skin.

Objectives of the review

The literature review aimed to assess the evidence for effective skin-care regimes for newborn infants to inform guidelines for midwives and other health professionals advising mothers. Two questions were posed:

- Is there evidence to support the advice not to use commercial wash products for healthy full-term infants in the first few weeks of life?
- Is there evidence that commercial wash products cause skin dryness or water loss when compared to washing with water only?

Methods

The search selection and review criteria selected used the methods described in the *Cochrane handbook for systematic reviews of interventions* (Higgins and Green, 2009).

Participants

- Term newborn infants with healthy skin
- Exclusions – preterm infants and newborns with identified morbidities.

Interventions

Any commercial wash product or soap or wash wipe used for washing or cleansing a baby's skin compared with other types of wash product wipe or soap or plain water.

Table 1. Electronic databases consulted and search terms used for years 2000 to 2010

Searches were performed electronically using AMED, MEDLINE, CINAHL

Search terms used: bab, neonat*, infant, human, newborn, skin, skin care, wash*, bath**

**asterisk indicates variable word endings*

Comparators

Randomised clinical trials that compare the use of commercially available wash products or compare wash products with water. Cross over design with washout period would be considered.

Outcome measures

- Skin dryness – (TEWL)
- Skin surface pH
- Skin breakdown
- Atopic dermatitis/adverse events such as allergic reactions
- Costs.

In searching the literature, we aimed to identify clinical trials that compared the use of commercially available wash products or compared wash products with water. Previous published literature reviews enabled us to limit the search to the last ten years. Electronic database searches for years 2000 to 2010 were conducted using AMED, CINAHL and MEDLINE using the search terms shown in Table 1.

We selected English language studies in which participants were term newborn infants. All relevant abstracts were reviewed and where there was doubt about the inclusion, the full paper was reviewed before a decision was made. Data were extracted and recorded on a data extraction form by the first author. Reference lists were hand searched to identify further studies.

Findings

Nine studies were identified from abstracts and full papers reviewed. The studies are shown in Table 2. Three studies were initially included in the review, Bartels et al (2010), Dizon et al (2010) and Visscher et al (2009). Following further discussion over the participants in the third study (Visscher et al, 2009), who were all in neonatal intensive care, it was decided to exclude this leaving only two studies. Reasons for exclusion of papers are discussed later. It was not possible to conduct statistical meta-analysis on the small numbers available so qualitative analysis was conducted. Bartels et al (2010) conducted a study in 64 full-term newborn infants in Berlin. Newborns at or over 48 hours were enrolled and randomly assigned to one of four groups as follows:

- Group WG – bathing twice weekly with commercially available wash gel product Johnson & Johnson's Top

to Toe® pH 5.5

- Group C – bathing twice weekly with clear water then applying a commercially available product – baby caring facial and body cream Penaten® by Johnson & Johnson
- Group WG and C – bathing with wash gel and applying cream after bathing
- Group B – bathing with clear water only.

All groups used the skin-care regime twice weekly from age seven days until eight weeks. Assessment of skin condition was carried out on day two for baseline data and then during week two, week four and week eight. Assessors were blinded to trial allocation. Standardisation of treatment was addressed by asking parents to bath their babies for five minutes twice weekly and nappies were supplied by Pampers® for the duration of the study. There is no information on

parental adherence to the protocol or acceptability of the protocol to parents. Outcome measures included: TEWL, corneum hydration, skin pH, sebum level, and skin colonisation. The following skin areas were tested on each occasion: forehead, abdomen, upper thigh, and buttocks. All measures were conducted more than 12 hours following last use of the skin-care regime.

The Bartels et al (2010) study had only 16 babies in each group, and is probably underpowered to show significant differences and there is no evidence of power calculation. The study authors report no differences in bacterial colonisation at the umbilical cord, the skin-care regimes appeared to show no differences in diaper dermatitis (nappy rash).

Dizon et al (2010) conducted a trial to test wash products versus tap water, which recruited 180 healthy full-term

Table 2. Full list of papers selected for review

Papers reviewed		
Bryanton J, Walsh D, Barrett M, Gaudet D. (2004) Tub bathing versus traditional sponge bathing for the newborn. <i>JOGGN</i> 33: 704-12.	Canada	Excluded
Darmstadt GL, Hossain MM, Choi Y, Shirin M, Mullany LC, Islam M, Saha SK. (2007) Safety and effect of chlorhexidine skin cleansing on skin flora of neonates in Bangladesh. <i>The Pediatric Infectious Disease Journal</i> 26(6): 492-5.	Bangladesh	Excluded
Lund C, Osborne JW, Kuller J, Lane AT, Lott JW, Raines DA. (2001) Neonatal skin care: clinical outcomes of the AWHONN/NANN evidence-based clinical practice guideline. <i>JOGNN</i> 30: 41-51.	US	Excluded
Nako Y, Harigaya A, Tomomomasa T, Morikawa A, Amada M, Kijima C, Tsukagoshi S. (2000) Effects of bathing immediately after birth on early neonatal adaptation and morbidity: a prospective randomized comparative study. <i>Pediatrics International</i> 42: 517-22.	Japan	Excluded
Nikolovski J, Stamatias GN, Kollias N, Wiegand C. (2008) Barrier function and water holding and transport properties of infant stratum corneum are different from adult and continue to develop through the first year of life. <i>Journal of Investigative Dermatology</i> 128: 1728-36.	US	Excluded
Tielsch JM, Darmstadt GL, Mullany LC, Khattry SK, Katz J, LeClerq SC, Shrestha S, Adhikari R. (2007) Impact of newborn skin-cleansing with chlorhexidine on neonatal mortality in southern Nepal: a community based, cluster randomised trial. <i>Pediatrics</i> 119: e330-40.	Nepal	Excluded
Visscher M, Odio M, Taylor T, White T, Sargent S, Sluder L, Smith L, Flower T, Mason B, Rider M, Huebner A, Bondurant P. (2009) Skin care in the NICU patient: effects of wipes versus cloth and water on stratum corneum integrity. <i>Neonatology</i> 96: 226-34.	US	Excluded
Bartels NG, Scheufele R, Prosch F, Schink T, Proquitté H, Wauer RR, Blume-Peytavi U. (2010) Effect of standardized skin-care regimens on neonatal skin barrier function in different body areas. <i>Pediatric Dermatology</i> 27(1): 1-8.	Germany	Included
Dizon MV, Galzotte C, Estanislao R, Mathew N, Sarkar R. (2010) Tolerance of baby cleansers in infants: a randomised controlled trial. <i>Indian Pediatrics March</i> : 1-5.	India	Included

infants (aged one day to one year) in the Philippines. The mean age of participants was 5.4 months. Subjects were randomised, stratified by age to three groups of 60 participants. Randomisation software was used for allocation of subjects:

- Group 1 – Johnson & Johnson Top to Toe® wash used at least twice weekly
- Group 2 – Sebamed Baby® liquid cleaner used at least twice weekly
- Group 3 – Lukewarm tap water.

Assessments were carried out in a laboratory with climate controlled conditions after one week and two weeks of use. Outcome data comprised measurements of: erythema, oedema, dryness and scaling using a five-point scale, skin moisture content, skin surface pH, TEWL, skin oxyhaemoglobin, and skin deoxyhaemoglobin. The areas of the body tested were: head, upper limbs, body and lower limbs. Parents were asked not to apply the products immediately before the testing and waited 30 minutes in the climate controlled environment before testing started to allow adjustment to the conditions. No information was provided about water conditions or water pH. It was not possible to identify if the assessors (all dermatologists) were blinded to trial allocation or not. Parental diaries and questionnaires were used to test the acceptability of products and parent perception of efficacy and side-effects.

Skin moisture levels

The authors give details of the instruments used for measuring TEWL and it appears that these are different in each of the studies. Skin moisture levels in the Dizon et al (2010) study were measured by instrumental assessment. The study also asked parents for their impression of skin moisturisation using a scale of one to five. There was some difference in baseline between the three groups in instrumental measurement. In the two product groups, the moisture content of skin was significantly higher at one week than at baseline. There was no significant change in the group assigned to bathing in water only. However at two weeks, the moisture levels in all three groups were comparable to baseline. Changes in TEWL were not noted to be significant in any of the groups.

Bartels et al (2010) found TEWL was lower in newborns who were treated with bathing in clear water followed by cream application, on all anatomical sites when compared to water only. Those who had wash gel and cream applied had lower TEWL on the forehead, abdomen and upper leg. Washing with or without wash gel, without the cream application resulted in equal TEWL values. The areas affected by the cream application were the forehead and abdomen only.

Skin pH

Bartels et al (2010) reported skin pH was significantly lower ($p < 0.000$) in group WG (wash gel) compared with group B (water) after eight weeks: forehead 4.75 pH

units (range: 4.58-4.87), abdomen 4.89 pH units (4.65-5.03) upper leg 4.86 pH units (4.67-5.05), and buttock 4.98 pH units (4.7-5.21). Skin pH, which gradually becomes more acid starting from a near neutral 6.2 to 7.5 at birth, reaching adult levels after a few weeks (pH 5.4-5.9) and was not affected by the use of wash gel or cream with skin pH significantly lower in the wash gel group compared to water only. However, in all groups the normal process of lowering skin pH had taken place. The report concludes that none of the skin-care regimes showed any beneficial effects over the others on physiological adaptation or maturation of the skin.

Dizon et al (2010) found that group 1 (Johnson's Top to Toe®) and 3 (luke warm tap water) subjects had a significant decrease in pH after one week of the regime, but the pH returned to baseline values by the second week. No changes in pH were noted in group 2 (Sebamed®). It is possible that changes in skin pH response to products may be associated with age of infants and the younger age group in the German study may be reflected in the results.

Age of infants

No significant differences were noted by Dizon et al (2010) when comparing all the regimes with each other. Although groups were stratified in age, the effect of skin maturation on the results is not accounted for and skin differences between a baby aged one day and an infant more than six months old may be quite considerable.

The mean age of the babies in the study by Dizon et al (2010) is considerably older than the German study (Bartels et al, 2010) and therefore it may be difficult to compare skin responses due to maturation factors.

The outcome measures were assessed by Bartels et al (2010) for a longer period of time, such as eight weeks, as compared with only two weeks in the Philippines study (Dizon et al, 2010). However both studies required the parents to use the regime twice weekly. It is difficult to identify from the reports how they ensured compliance to the regime. Dose measured bottles supplied to the parents could have ensured that they only had sufficient for the week or fortnight between assessments.

Dizon et al (2010) note that theirs is the first study in Asia to consider the use of commercial products on infant skin, however, water quality and ethnic differences would need to be considered in analysing this data together with that of other studies.

Excluded studies

The following studies were considered and excluded:

- Bryanton et al (2004) compared the effects of tub (bath) bathing versus sponge bathing using outcome measures that related to temperature stability, umbilical cord healing and infant contentment. There was no comparison between products
- Darmstadt et al's (2007) study was carried out on newborns in an intensive care unit and therefore falls outside the scope of this review, which aimed to

Table 3. Summary of studies on infant skin care (table adapted from the Cochrane handbook (Higgins and Green, 2009))

	Dizon et al 2010		Bartels et al 2010	
Methods	Randomised controlled trial of wash products versus tap water		Prospective randomised clinical study	
Participants	Healthy babies Mean age of infants 5.4 months/180 total/ 60 in each group/with good skin condition at trial enrolment/excluded preterm infants		64 healthy full term infants/16 per group	
Interventions	Wash product versus water only <ul style="list-style-type: none"> Group 1 – Johnson & Johnson (UK) Top to Toe® wash Group 2 – Sebamed Baby liquid cleaner Group 3 – Lukewarm tap water. 		Four groups Twice weekly intervention from seven days to week eight Group WG – bathing with Johnson & Johnson (UK)'s Top to Toe bath product Group C bathing with clear water then applying a Johnson & Johnson (UK) product baby caring facial and body cream Group WG and C Bathing with wash gel and applying cream after Group B bathing with clear water only Bathing lasted 5 minutes. All babies were supplied with nappies from Pampers to standardise treatment	
Outcomes	Measured at one week and two weeks following enrolment Erythema Oedema Dryness and scaling using a five-point scale Skin moisture content Skin surface pH Transepidermal water loss (TEWL) Skin oxyhaemoglobin Skin deoxyhaemoglobin		Skin tested in four areas of body: <ul style="list-style-type: none"> • Front (forehead) • Abdomen • Upper thigh • Buttocks. All measures were more than 12 hours following last use of regime	
Notes	Parents' diary to note comments and observations Questionnaire to parents after one week and two weeks for perception of efficacy and side effects of products		No drop out No data on parental acceptability or adherence to regime were presented.	
Risk of bias				
Item	Judgement	Description	Judgement	Description
Adequate sequence generation	Yes	Randomised using randomisation software Stratified by age	No	No information on randomisation process
Allocation concealment	Unclear	No description	No	No information
Blinding of women	Unclear	No information	Not possible	
Blinding of assessors	Unclear	No information	No	No information
Free of other bias	No	Funded by Johnson & Johnson (UK) Investigators employed by Johnson & Johnson (UK)		Johnson & Johnson (UK) funded but had no input in study design, conduct, data analysis or interpretation

include studies with healthy term newborn infants

- Lund et al's (2001) large scale study was carried out to test the effectiveness of an evidence-based guideline (Lund et al, 1999) on selected care outcomes for newborns in NICUs. This was a pre- and post-intervention study without randomisation. Skin assessment was carried out using a skin condition visual assessment score. It highlighted however the number of interventions that interfere with skin barrier in this group of very sick newborns and scores showed that guidelines improved skin care. The majority of babies included in the study were neonatal intensive care or special care patients (n=2464), although 356 well newborns were included in the study. Of the sample, 60.2% were caucasian and it would have been valuable to have had some subgroup analysis to compare skin integrity between different ethnic groups. This study has been influential in guiding practice within NICUs. However in terms of understanding skin-care regimes in well newborns, it has added little to our understanding
- Nako et al (2000) was excluded from the review because outcome measures related primarily to temperature control, respiratory rate and blood pressure in the immediate time after birth. The lack of outcome measures relating to skin condition meant it could not be included
- Nikolovski et al (2008) provides useful background information on the development and maturation of the stratum corneum, which refutes previous evidence that this skin layer has fully developed at three months old. The study demonstrates the barrier function and rates of absorption in young infants continue to develop up until 12 months of age. While this provides valuable background information, the study does not compare products or washing regimes and therefore is excluded from the review
- Tielsch et al (2007) used chlorhexidine antiseptic wipes versus a placebo. The intervention was a one-off treatment of whole body wiping with either chlorhexidine or placebo soon after birth. Primary outcome measure was neonatal mortality. Although clearly a well designed large study, it has no bearing on Western practices of bathing or washing infants with products versus water
- Visscher et al (2009) recruited babies in a NICU in Cincinnati. Of the total enrolled in the study, 97 babies were less than 38 weeks gestational age and 33 were at, or over 38 weeks gestational age. Babies recruited were considered to be medically stable and with no adverse skin conditions or reactions at the time of enrolment, though they were all being nursed on the NICU. The study compared the use of diaper wipes (wet-wipes) in three groups: 1) Treatment A – Wipe A was a commercially available product (Pampers® sensitive wipes) with a product pH 5.2; 2) Treatment B – Wipe B (Pampers® sensitive wipes) with product pH 4; 3) Treatment C was cloth (4x4

rayon/polyester) and water. Only 14 babies with gestational age of 38 weeks and over remained in the study up to day 14, which was the end point identified for outcome measures. It is unclear why the babies over 38 weeks were in the NICU, so this study was excluded.

Current studies

Details of two current registered trials were found, both were due to complete by the end of 2010:

- *ISRCTN 72285670 Babyskin care research programme:* an assessor-blinded randomised controlled trial (RCT) comparing an infant skin-cleansing product with water. Sample anticipated 280
- *ISRCTN 86207019 Baby skin care research programme:* an assessor-blinded RCT comparing impregnated cleansing wipes with water in infants. Sample anticipated 280.

Discussion

The studies reviewed are methodologically limited (see Table 3) lacking in power to demonstrate significance, confounded in one case by the large age range of infants and reports do not adhere to strict CONSORT standards (Moher et al, 2010), so it is not easy to draw comparisons. Although the studies show standardised measurements in TEWL and skin pH, other measures such as dryness and scaling use variable measures. The time between intervention and measurement was not comparable between the studies. Reporting of measurements is varied in the papers with some substituting diagrams for actual values thus making it difficult to compare the values without access to the original data sets.

The age at which babies were enrolled onto studies may have an impact on the results, given what is known about skin barrier development continuing throughout the first year of life. In one study (Dizon et al, 2010), babies were enrolled at ages one day to one year, so it is unclear whether the skin maturation itself may have been a confounding variable. The total number of infants included at the end point in the studies is very small and this makes it difficult to draw conclusions. However, no studies found harmful effects of either water or wash products on the skin of newborn infants. This suggests that current guidelines are not unsafe.

Conclusions

In returning to the questions we posed at the beginning of our search, it is difficult as yet to say that there is evidence to provide definitive answers. There are now studies that give further insight into the debate, although these are sponsored by commercial companies. The fact that research is being undertaken in this area is encouraging, given the interest from health professionals and mothers.

The two studies reviewed demonstrate neither harm nor benefit from the wash regimes using water alone

and commercial wash products. In view of the fact that two trials are ongoing (see *Current studies*) and due to complete by the end of 2010, it would be premature to make recommendations for changes in practice. It

would be reasonably anticipated that these new studies might add considerably to the body of evidence and thus provide a stronger evidence base on which to produce professional guidelines.

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Smoking in pregnancy: comparisons between data from the Infant Feeding Survey 2000 and 2005

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Abstract

Background. Although the UK Infant Feeding Survey was first introduced in 1975, data in relation to smoking behaviour was first collected in 1985. It was hoped that the collection of five yearly trend data could facilitate future health promotion activity and effective intervention development.

Aim. The aim of this paper is to review the smoking related findings of the 2005 Infant Feeding Survey with that of 2000 as a means of identifying both evidence of health improvement and health challenges.

Method. The Infant Feeding Surveys completed in 2000 and 2005 were sourced. Each survey report was read and the key findings were extracted and compared.

Findings. Across the UK, the overall incidence of smoking throughout pregnancy appeared to fall between 2000 and 2005; where 20% of pregnant women reported smoking in 2000 compared with 17% in 2005. Similarly, 10% of women in 2005 compared to 11% in 2000 reported spontaneous cessation early in pregnancy. Most women who continued to smoke reduced their consumption 14% in 2000 and 11% in 2005. Among younger mothers smoking increased from 40% in 2000 to 45% in 2005. Smoking among disadvantaged mothers remains much higher than in professional/managerial groups (29% versus 7% respectively). Similar patterns were observed in the data for women who lived with a partner who smoked (39% in 2000 falling to 36% in 2005).

Conclusion. While health professionals work towards the reduction of smoking in pregnancy and early motherhood by 2020 (Department of Health, 2010), comparing the findings from the 2005 survey with that of 2000, confirms the need to provide health promotion activity that is specifically targeted at young and disadvantaged women and those who live with a partner who smokes.

Key words: Infant Feeding Surveys, smoking, pregnancy, partners, smoke free, cessation, evidenced-based midwifery

Introduction

Every five years, the Infant Feeding Survey is commissioned by the UK government. While the main emphasis of the survey is to report on infant-feeding behaviour, important information is provided in relation to other critical factors such as whether or not mothers took dietary supplements, drank alcohol or smoked during pregnancy. While issues such as alcohol consumption during pregnancy are important public health issues, this paper compares the findings of the 2005 Infant Feeding Survey (Bolling et al, 2007; IFS) with that of the 2000 survey (Hamlyn et al, 2000) in relation to maternal smoking behaviour. Particular focus is placed on the initiation and

discontinuation of smoking behaviour during pregnancy and early motherhood.

Background

Although the UK IFS was first introduced in 1975, data in relation to smoking behaviour was first collected in 1985. It was hoped that the collection of five yearly trend data could facilitate future health promotion activity and effective intervention development. An important response to the national IFS data related to maternal smoking both during pregnancy and early motherhood was the publication of the *Smoking kills* legislation in 1998 (Department of Health, 1998). Acting as a

Table 1. Three main categories of smoking behaviour (IFS 2000 and 2005)

1. Smoking before or during pregnancy

This is the proportion of mothers who smoked at all in the two years before they completed stage one of the survey. This roughly covers the period of their pregnancy plus the year before conception.

2. Smoking throughout pregnancy

This is the proportion of all mothers who smoked in the two years before they completed stage one of the survey, and who were smoking at the time of their baby’s birth. This includes mothers who may have given up smoking before or during their pregnancy, but who had restarted before the birth.

3. Gave up smoking before or during pregnancy

This is the proportion of mothers who smoked in the two years before they completed stage one of the survey and who gave up during this period and had not restarted before the birth of the baby.

landmark public health strategy, this government White Paper emphasised reduction in smoking behaviour among pregnant women as a priority target goal for health professionals. To date, the evidence provided by the 2000 (Hamlyn et al, 2002) and 2005 (Bolling et al, 2007) IFSs suggests that while significant progress has been made, further research into the phenomenon of maternal smoking is required. Therefore, on the brink of the publication of the 2010 IFS, this paper reminds readers of the survey method applied by the Office of National Statistics (Bolling et al, 2007; Hamlyn et al, 2002) and compares the evidence of 2005 with that of 2000, as a brief reminder of the national progress already made and the challenges ahead.

Survey method

As already highlighted, the IFS is a national survey that is carried out every five years across the UK. Although the title emphasises the role of infant feeding, the data collected concerning maternal smoking behaviours is of equal importance to the health of the nation. For example, in 2000, a sample of 13,112 births was extracted from all the live births that were registered between August and October that explored smoking behaviour in addition to infant-feeding behaviour. To achieve a more comprehensive picture of smoking behaviour across the four countries of the UK, an unclustered sample of births was selected from all live births registered in specific months during 2005. Likewise in 2005, 19,848 births were sampled from all registered live births during August and October. Data in both surveys were collected from mothers via postal questionnaires using a three-stage process:

- Data collection phase one: four to ten weeks postnatal in 2000 and 2005
- Data collection phase two: four to five months in 2000 and four to six months in 2005 postnatal
- Data collection phase three: eight to nine months in 2000 and eight to ten months in 2005 postnatal.

In each survey, the findings are reported in relation to past and current maternal smoking behaviour as outlined in Table 1.

Similar response rates were satisfactory across all three phases in 2000 and 2005; for example, in 2000, the response rates were 72% (phase one), 87% (phase two) and 88% (phase three). In 2005 the response rate although initially lower than in 2000 at 62% (phase one), increased to 88% in phase two and 87% in phase three. As a result, in 2000, the overall response rate for all three questionnaires was recorded as 55%, while in 2005 this had decreased to 47.4%; indicating an overall reduced cumulative response as illustrated in Table 2.

The surveys have demonstrated that factors such as age and educational attainment are also determinants of breastfeeding behaviour; it therefore must be noted that women who are most likely to smoke are also those least likely to breastfeed. Collecting data in an infant-feeding survey may therefore have had an effect on women’s willingness to participate in relation to their smoking behaviour and vice versa. Analysis of the 2005 survey showed a lower response rate among young mothers and areas of deprivation; therefore the final analysis was adjusted to control for such variation.

Although the overall structure and methods applied in the 2000 and 2005 surveys accommodates important comparison, certain differences in the survey methods exist. For example, in 2000 as a nationwide survey, data was not available for the four countries within the UK, while in 2005 the findings are reported across and within the four countries, enabling a more regional

Table 2. Cumulative response rates (IFS 2000 and 2005)

Cumulative response rates	2000	2005
Response rate to first questionnaire	72%	62%
Response rate to first and second questionnaire	63%	54%
Response rate to first, second and third questionnaire	55%	47%

Table 3. Summary of the categories of women’s smoking behaviour in 2000 and 2005 (UK)

Categories of mothers’ smoking behaviour	IFS findings 2000	IFS findings 2005
Smoked before pregnancy but gave up	16%	16%
1. Stopped smoking within 12 months of pregnancy	3%	4%
2. Spontaneously quit on confirmation of pregnancy	11%	10%
3. Stopped later in pregnancy and remained non-smoker	2%	1%
Continued to smoke throughout pregnancy	20%	17%
4. Cut down	14%	11%
5. Gave up but started again before delivery	4%	5%
6. Did not cut down	2%	1%

and targeted response. Prior to discussing the main differences and similarities presented in the 2000 and 2005 surveys, details concerning the method of comparing the data presented in the 2000 survey and 2005 survey is provided.

Method

To enable comparison, the complete survey report of the 2005 IFS (Bolling et al, 2007) and the 2000 IFS (Hamlyn et al, 2002) were sourced. The relevant chapter in each survey was read and re-read, marking all the important data related to smoking behaviour. A list of results reported in the 2000 survey was entered into a table, for example the percentage of women who reported living with a smoker; the process was then repeated in a second table for the 2005 survey. Differences in the nature of the data collected were also entered into the relevant table, such as maternal smoking within the home was entered into the 2005 survey table, but omitted from the 2000 survey table as this data were not collected. The tables were then amalgamated and increases and decreases in the overall percentages of maternal smoking behaviours noted. An additional column was then added that enabled increases and decreases in the percentages to be easily identified. The results across the studies were then categorised to enable further examination. Categories included: general maternal smoking behaviour, sub-group results such as incidence by country, influence of a woman’s partner, impact of health promotion advice during pregnancy and behaviour following birth.

Results

Demographics

Some differences in the socio-demographics of the

sample were noted. Women in 2005 were more likely to be having their first baby (51% and 47% respectively), be slightly older (there was an increase in mothers aged 35 or over from 16% in 2000 to 19% in 2005) and more educated (in 2000, 28% of mothers were educated to higher education age (19 or over) compared to 38% in 2005). It was noted that across the UK in 2005 smoking throughout pregnancy was over four times more likely among routine and manual groups compared to professional and managerial groups (29% and 7% respectively). Compared with 2000, smoking throughout pregnancy in routine and manual groups was unchanged but there was a reduction among professional and managerial groups (29% and 8% respectively). But in England, there was an increase in smoking throughout pregnancy in routine and manual groups from 28% in 2000 to 29% in 2005 as compared to professional and managerial groups where the rate was unchanged (7% in 2000 and 2005). In 2005, across the UK, smoking throughout pregnancy was five times more likely than in older mothers (45% and 9% respectively) compared to 2000 where there was an increase in teenagers and a decrease in older mothers smoking (40% and 13% respectively).

Smoking behaviours

Across the UK, the percentage of women who smoked either in the year before or during their pregnancy fell from 35% in 2000 to 33% in 2005. As illustrated in Table 3, variations in rate of smoking reported varied in relation to the timing and nature of smoking behaviour. A number of important factors were measured in 2005 for the first time:

Table 4. Progress and challenges associated with smoking behaviour

Key:  Progress in reducing smoking behaviour
 Ongoing challenges

	Smoking behaviour in the 2000 survey	Smoking behaviour in the 2005 survey	Percentage differences notes
General smoking behaviour	Overall 52% of mothers had never smoked	Overall 53% of mothers had never smoked	1% increased in number of mothers never smoked
	Overall 13% gave up over 12 months before pregnancy	Overall 14% gave up over 12 months before pregnancy	1% increase in number of ex-smokers (who stopped over 12 months before their pregnancy)
Sub-group results	Of mothers who smoked before or during pregnancy, 44% stopped at some point before the birth	Of mothers who smoked before or during pregnancy, 48% stopped at some point before the birth	4% increase in women stopping at some point before birth
	Mothers in Northern Ireland were the most likely to smoke throughout pregnancy (23%), then Scotland (22%), Wales (19%) and England (19%)	Mothers in Wales were the most likely to smoke throughout pregnancy (22%), then Scotland (20%), Northern Ireland (18%) and England (17%)	N Ireland – 5% decrease Scotland – 2% decrease Wales – 3% increase England – 2% decrease
	Mothers in routine/manual occupations were more likely to smoke throughout pregnancy (29%)	Mothers in routine/manual occupations were more likely to smoke throughout pregnancy (29%)	No change in women in routine/manual occupations behaviour in pregnancy (29%) apart from a 1% increase in England
	Mothers in professional/managerial occupations were less likely to smoke throughout pregnancy (8%)	Mothers in professional/managerial occupations were less likely to smoke throughout pregnancy (7%)	1% decrease in women in professional/managerial occupations behaviour in pregnancy
	Teenagers likely to smoke throughout pregnancy (40%)	Teenagers likely to smoke throughout pregnancy (45%)	5% increase in teenage smoking
	Older mothers were less likely to smoke throughout pregnancy (13%)	Older mothers were less likely to smoke throughout pregnancy (9%)	4% decrease in older mothers smoking
Influence of partners	21% of non-smoking mothers lived with another smoker, mainly their partner	21% of non-smoking mothers lived with another smoker, mainly their partner	No change in partners smoking habits
	Approximately 3% of partners stopped smoking during the mother’s pregnancy	Approximately 4% of partners stopped smoking during the mother’s pregnancy	1% increase in partners quitting smoking
	Mothers who lived with another smoker, mainly their partner were much more likely to smoke throughout their pregnancy (39%)	Mothers who lived with another smoker, mainly their partner were much more likely to smoke throughout their pregnancy (36%)	3% decrease in women smoking who lived with a smoker

Table 4 continued. Progress and challenges associated with smoking behaviour

	Smoking behaviour in the 2000 survey	Smoking behaviour in the 2005 survey	Percentage differences notes
Influence of partners	Mothers who lived with a non-smoker, mainly their partner smoked throughout their pregnancy (11%)	Mothers who lived with a non-smoker, mainly their partner smoked throughout their pregnancy (8%)	3% decrease in women smoking who didn’t live with a smoker
	Overall, 29% of mothers lived with a partner who smoked	Overall, 28% of mothers lived with a partner who smoked	1% decrease in number of mothers living with a partner who smoked
Impact of advice during pregnancy	86% of received advice on smoking during their pregnancy	87% of received advice on smoking during their pregnancy	1% increase in women receiving advice in pregnancy
	The main source of advice was midwives (88%)	The main source of advice was midwives (89%)	1% increase in midwives as main advice source
	Not measured	Mothers who were advised to stop smoking completely were much more likely to stop compared with mothers who were advised to cut down (36% and 8% respectively)	Not measured
Behaviour following birth	26% of mothers relapsed back to smoking within one year of the birth	30% of mothers relapsed back to smoking within one year of the birth	4% increase in postnatal relapse
	Not measured	At stage 2 of the survey 28% of mothers currently smoking said they never smoked in the home and at stage 3, reduced to 23%	Not measured

- Women who were only advised to stop were much more likely to do so than women who were advised to cut down (36% and 8% respectively)
- Women reported that between the age of four-six months, 9% of infants were exposed to cigarette smoke in the home
- Women reported that between the age of 8-10 months, 7% of infants were exposed to cigarette smoke in the home.

Table 4 provides further details concerning the progress and challenges associated with smoking behaviour. Focusing primarily on comparisons noted between smoking behaviour in 2000 and 2005, the following two aspects are discussed as challenges associated with further health promotion activity and research:

- Pregnancy as motivation to stop smoking
- Smoking cessation and smoking relapse.

Discussion

It is known that smoking in pregnancy is associated with an increased risk of infant mortality (Department of Health, 2007). Likewise, the financial cost to the NHS (UK) is also reportedly high; ranging from £8.1m to £64m per annum (Godfrey et al, 2010). By comparing smoking behaviour reported in the 2000 IFS with that of the 2005 IFS, two

aspects of smoking in pregnancy and successful smoking cessation come to the fore; pregnancy as motivation to stop smoking and smoking cessation and relapse.

Pregnancy as motivation to stop smoking

At first glance, the results presented in Table 3 indicate that little progress has been made in relation to the cessation of smoking in pregnancy. For example, overall the same percentage of established smokers reported giving up in 2000 as in 2005 (16%). In fact, smoking cessation as an overall response to the confirmation of pregnancy appeared to be lower in 2005 than in 2000. However on closer exploration of the results related to sub-groups (Table 4), progress is noted. For example, there was a 2% increase in the number of women who decided to stop at some point prior to the birth of their baby. Likewise, a slight reduction in smoking behaviour among professional/managerial women was reported.

According to Fang et al (2004), women’s desire to stop smoking during pregnancy should not be surprising; the authors point out that the main motivation underpinning women’s decision to stop or reduce the amount of cigarettes they smoke, is their desire to protect their unborn baby. Recognising the importance of smoking cessation during pregnancy is beneficial. Evidence shows

that quitting smoking before 15 weeks’ gestation can significantly reduce the serious risks (McCowan et al 2009). However, during the last trimester of pregnancy when rapid fetal growth normally occurs, smoking is related to placental insufficiency and a subsequent low birthweight (British Medical Association, 2004). Although the results indicated a 1% increase in the number of women who were advised about smoking during their pregnancy (of which 89% reported midwifery advice), Lawrence (2002) points out that there is less than a 50% chance that health professionals will routinely discuss smoking advice during this critical period.

Interestingly, more women (3%) appeared to find the motivation to reduce the amount of cigarettes they smoked during their pregnancy. Although the IFSs demonstrated that the majority of smokers cut down their cigarette consumption in pregnancy; studies using cotinine measures of exposure to tobacco smoke suggest that women who cut down, change the way in which they smoke so as to obtain their usual level of nicotine. Furthermore, women are still exposed to the same level of toxins and the reduction in the number of cigarettes smoked is only temporary and unlikely to last into the third trimester (Lawrence et al, 2003). Consistent with the evidence to date, the data collected in 2005 demonstrated that women, who were advised to stop smoking completely, rather than reduce smoking, were more likely to actually stop (36% and 8% respectively). It is therefore on the strength of such evidence that the smoke-free pregnancy approach aims to strengthen the message that every cigarette smoked when pregnant is harmful to the unborn baby (NICE, 2010; Department of Health, 2007; Dempsey et al, 2001).

Smoking cessation and smoking relapse

While the evidence focuses on total smoking cessation rather than smoking reduction, the findings of the surveys highlight the reality of smoking relapse. A 4% increase was found in the number of women relapsing within a year of cessation between 2000 and 2005. Recognising the risk of relapse, authors such as Lumley et al (2009) recommend that support and relapse prevention strategies should be a routine part of antenatal care as the recording of women’s blood pressure measurement. Although not reported in the infant-feeding surveys, evidence shows that some pregnant women on occasions increase their smoking behaviour due to stress or boredom (Department of Health, 2007). As noted by Cope et al (2003) in the last trimester issues such as anxiety, immobility and boredom may motivate women to increase smoking among women who initially cut down their smoking behaviour when first pregnant. Even though the reported data illustrates the reality of smoking relapse, it is worth pointing out that women who stopped smoking before their first antenatal booking appointment are typically categorised as ex-smokers/non-smokers and generally not offered cessation support. Although their cessation rates throughout their pregnancy are high, many will

relapse within six months of delivery. NICE recommends the need for research into relapse prevention during or after pregnancy (NICE, 2010).

Even though published evidence points to motivators such as boredom and anxiety in late pregnancy, the results of both surveys highlight the cultural influences related to smoking behaviour. In 2005, the number of women who reported living with someone who smoked dropped to 36% in comparison to 39% reported in 2000. While this slight change in smoking behaviour among women’s partners is encouraging, the reality remains that 36% of pregnant women are living in a smoke-filled environment. Inferences as to the motivational impact of living with a smoker on women’s smoking behaviour cannot be drawn from this level of data, nonetheless the surveys indicate a lower incidence of smoking behaviour among women who did not report living with a smoker. Recognising that women who live with partners who smoke find it harder to stop and are more likely to relapse (Fang et al, 2004), the Department of Health launched the national Smoking and Pregnancy Partner’s Campaign (MIDIRS Midwifery Digest, 2002). Success of that campaign may not be strongly evident in the 2005 data; however the survey does provide some early indication of its success.

In 2005, for the first-time mothers were asked about smoking in the home indicating the proportion of young infants who are exposed to tobacco smoke at home. Only 9% of infants at stage two and 7% at stage three lived in a household where at least one person smoked in the home (Bolling et al, 2007). Considering that parental smoking has major implications for infant wellbeing (Burgess, 2008), evidence from the surveys emphasise the importance of the role of the midwife in promoting smoking cessation in both women and their partners (Bull, 2007).

The introduction of smoke-free legislation from March 2004 in the Republic of Ireland, from March 2006 in Scotland; April 2007 in Wales, April 2007 in Northern Ireland and from July 2007 in England has been popular and effective and has achieved high rates of compliance (Department of Health, 2010). Despite concerns that smoking bans may increase in smoking in the home (Flemming et al, 2008) the amount of households that allow smoking is falling. The Office for National Statistics reports a statistically significant increase in the number of smoke-free homes in the UK from 61% in 2006 to 69% in 2008/09 (Lader, 2008). A welcoming development is therefore the publication of national best practice guidance in relation to the extension of the NHS stop-smoking services to address partners and other household smokers (NICE, 2010).

Conclusion and recommendations for practice

The key messages to be taken are:

- Comparison of the data between 2000 and 2005 demonstrates how young and disadvantaged women are more likely to smoke throughout pregnancy
- Extend interventions and support to partners and

other smokers living with the pregnant woman

- Pregnant women need clear and consistent messages to stop smoking rather than cutting down
- Stop smoking messages should be sensitive, non-judgemental and relevant to the circumstances of women’s daily lives.

Although the surveys report a decrease in the UK prevalence of smoking in pregnancy, the findings still translates to 17% (one in six) women in 2005 who admitted to smoking throughout their pregnancy. Areas of slight improvement have been noted since 2000 however the challenge of promoting smoke-free pregnancies and home environments should not be underestimated. While health professionals work towards the reduction of smoking in pregnancy and early motherhood by 2020 (Department of Health, 2010), comparing the findings from the 2005 survey with that of 2000, confirms the need to provide

health promotion activity that is specifically targeted at young and disadvantaged women and those who live with a partner who smokes.

Greaves et al (2003) reported smoking was not the only health and wellbeing challenge that pregnant women faced; issues such as nutrition, financial security and domestic violence may be as equally pressing and could lead to increased smoking behaviour. While particular women groups may require targeted and tailored intervention, such as stopping young people from starting smoking (Department of Health, 2010), effective intervention demands a sensitive, non-judgemental women-centred approach (Greaves et al, 2003). In order for midwives to meet the challenges laid down by the infant-feeding surveys in relation to smoking behaviour in pregnancy and early motherhood, they require ongoing educational input (NICE, 2010; Fyle and Kaufmann, 2002).

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Information for authors

Evidence Based Midwifery is published quarterly and aims to promote the dissemination, implementation and evaluation of midwifery evidence at local, national and international levels. Papers on qualitative research, quantitative research, philosophical research, action research, systematic reviews and meta-analyses of qualitative or quantitative data are welcome. Papers of no longer than 5000 words in length, including references, should be sent to: gareth@midwives.co.uk in MS Word, and receipt will be acknowledged. Suitable papers are subject to double-blinded peer review of academic rigour, quality and relevance. Subject area and/or methodology experts provide structured critical reviews that are forwarded to authors with editorial comments. Expert opinion on matters such as statistical accuracy, professional relevance or legal ramifications may also be sought. Major changes are agreed with authors, but editors reserve the right to make modifications in accordance with house style and demands for space and layout. Authors should refer to further guidance (RCM, 2007; Sinclair and Ratnaïke, 2007). Authorship must be attributed fully and fairly, along with funding sources, commercial affiliations and due acknowledgements. Papers that are not original or that have been submitted elsewhere cannot be considered. Authors transfer copyright of their paper to the RCM, effective on acceptance for publication and covering exclusive and unlimited rights to reproduce and distribute it in any form. Papers should be preceded by a structured abstract and key words. Figures and tables must be cited in the text, and authors must obtain approval for and credit reproduction or modification of others' material. Artwork on paper is submitted at the owner's risk and the publisher accepts no liability for loss or damage while in possession of the material. All work referred to in the manuscript should be fully cited using the Harvard system of referencing. All sources must be published or publicly accessible.

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News and resources

The road to Durban provides opportunity for the profession:

ICM president Bridget Lynch has spoken of the time being right for the midwives of the world to demonstrate their commitment to the women of the world. With just a few months to go until the 29th ICM Triennial Congress, organisers of the event, taking place in South Africa from 19-23 June 2011, are seeking to ensure it works to bring visibility to midwives. The UN's recent pledge of £2.5bn toward improving maternal and newborn health as part of its Millennium Development Goals means the congress can be an important step in highlighting the central role of midwives will play in that effort. For more information, visit: www.midwives2011.org

Study finds drinking in pregnancy link to reduced behavioural problems

Consuming a small amount of alcohol in pregnancy may not have a negative effect on the baby's development, according to a new study. Research carried out by University College London (UCL) and published recently in the *Journal of Epidemiology and Community Health* found that five-year-olds whose mothers had one or two drinks a week while pregnant did not exhibit any cognitive or behavioural problems compared with the children of women who abstained from drinking during pregnancy.

Reference: Kelly Y et al. (2010) Light drinking during pregnancy: still no increased risk for socio-emotional difficulties or cognitive deficits at five years of age? *Journal of Epidemiology and Community Health* doi:10.1136/jech.2009.103002

Report shows little need to stray from the path already taken

RCM general secretary Cathy Warwick admitted many midwives might read *Midwifery 2020 – Delivering expectations*, and ask, what's new? But this is one of its great strengths, she said. It shows that the profession is already getting it right. The report, launched in September 2010, sets out the vision of how midwives in the UK can meet the needs of service users in the future. What is needed now, Cathy said, is more of the same and ensuring that the good practice outlined in the report is embedded in services. For more information, visit: www.midwifery2020.org

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