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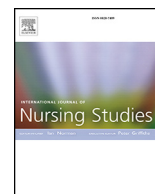
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Midwives' and obstetricians' practice, perspectives and experiences in relation to altered fetal movement: A focused ethnographic study[☆]

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ABSTRACT

Background: Reducing avoidable stillbirth is a global priority. The stillbirth rate in England compares unfavourably to that of some other high-income countries. Poorly-managed episodes of altered fetal movement have been highlighted as a key contributor to avoidable stillbirth, and strategies introduced in England in 2016 to reduce perinatal mortality included recommendations for the management of reduced fetal movement. Despite a downward trend in stillbirth rates across the UK, the effects of policies promoting awareness of fetal movement remain uncertain.

Objective: To provide in-depth knowledge of how practice and clinical guidance relating to altered fetal movement are perceived, enacted and experienced by midwives and obstetricians, and explore the relationship between recommended fetal movement care and actual fetal movement care.

Design: A focused ethnographic approach comprising over 180 h of observation, 15 interviews, and document analysis was used to explore practice at two contrasting UK maternity units.

Settings: Antenatal services at two UK maternity units, one in the Midlands and one in the North of England.

Participants: Thirty-six midwives, obstetricians and sonographers and 40 pregnant women participated in the study across 52 observed care episodes and relevant unit activity. Twelve midwives and three obstetricians additionally participated in formal semi-structured interviews.

Methods: Fieldnotes, interview transcripts, policy documents, maternity notes and clinical guidelines were analysed using a modified constant comparison method to identify important themes.

Results: fetal movement practice was mostly consistent and in line with guideline recommendations. Notwithstanding, most midwives and obstetricians had concerns about this area of care, including challenges in diagnosis, conflicting evidence about activity, heightened maternal anxiety, and high rates of monitoring and intervention in otherwise low-risk pregnancies. To address these issues, midwives spent considerable time reassuring women through information and regular monitoring, and coaching them to perceive fetal movement more accurately.

Conclusions: Practice relating to altered fetal movement might be more uniform than in the past. However, a heightened focus on fetal movement is associated by some midwives and obstetricians with potential harms, including increased anxiety in pregnancy, and high rates of monitoring and intervention in pregnancies where there are no 'objective concerns'. Challenges in diagnosing a significant change in fetal movement with accuracy might mean that interventions and resources are not being directed towards those pregnancies most at risk. More research is needed to determine how healthcare professionals can engage in conversations about fetal movement and stillbirth to support safe outcomes and positive experiences in pregnancy and birth.

Registration: Not registered.

Tweetable abstract: Midwives and obstetricians take #reducedfetalmovement seriously but worry this 'unreliable' symptom increases anxiety, monitoring and intervention in many 'low risk' pregnancies.

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What is already known

- The stillbirth rate in England compares unfavourably to that of many other high-income countries;
- Poorly-managed episodes of altered fetal movement have been highlighted as a key contributor to avoidable stillbirth;
- The effects of promoting awareness of fetal movement are uncertain, with some research linking this practice to increased obstetric intervention and associated risks.

What this paper adds

- Practice relating to altered fetal movement may be more uniform than in the past;
- However, midwives and obstetricians regularly doubted the reliability of the symptom, and spent considerable time coaching women to feel movements more 'accurately';
- Potential harms associated with the current focus on fetal movement, include increased anxiety in pregnancy, and high rates of monitoring and intervention in pregnancies where there are no 'objective concerns'.

1. Background

1.1. Altered fetal movement and stillbirth

The reduction of stillbirth is a global health priority, including in high-income countries, where wide variation and inequalities in stillbirth rates persist (Flenady et al., 2016). In the UK, around 1 in 300 births sadly end in stillbirth, where a baby is born showing no signs of life at or after the 24th week of pregnancy (Draper et al., 2022). The UK's stillbirth rate has been compared unfavourably to that of many other European and high-income countries (Flenady et al., 2016; Mohangoo et al., 2011; Zeitlin et al., 2016). In a 2016 comparison based on stillbirth rates since 2000, the UK was ranked 24th among 49 high-income countries (Flenady et al., 2016). Such international disparities motivated the UK Government to set targets in 2015 to reduce stillbirth rates. One area of focus for achieving this reduction is reduced fetal movement, a widely-recognised risk factor for stillbirth (Bradford et al., 2019; Holm Tveit et al., 2009; Stacey et al., 2011; Thompson et al., 2021; Warland et al., 2015).

Stillbirth and reduced fetal movement are linked to a common pathology, placental insufficiency. Prior to stillbirth, a restricted supply of oxygen and nutrients causes the baby to move less to conserve energy (Richardson and Bocking, 1998; Vintzileos et al., 1991). However, a single episode of vigorous fetal activity has also been associated with an increased risk of late stillbirth compared with no unusual vigorous activity (Stacey et al., 2011). For this reason, *altered* fetal movement was the focus of this research, although clinical guidelines (e.g. NHS England, 2019; Whitworth et al., 2011) and much research remain focused on *reduced* fetal movement. Therefore, both terms are used in this paper.

Unrecognised or poorly-managed episodes of reduced fetal movement have long been identified as an important contributory factor to avoidable stillbirths among term, singleton, normally formed births (Draper et al., 2015; Maternal and Child Health Research Consortium, 1997). The fourth Annual Report of the National Perinatal Mortality Review Tool (Kurinczuk et al., 2022), used across the UK, identifies inadequate investigation or management of reduced fetal movement as relevant to the death in 8 % of the perinatal deaths reviewed. There is evidence that practice relating to the screening, investigation and management of altered fetal movement has been variable and not always in accordance with the best available evidence. Surveys of midwives and obstetricians in high-income countries have revealed wide variation in knowledge, information-sharing and routine enquiry relating to fetal movement (Flenady et al., 2009; Heazell et al., 2008; Smith et al., 2014; Warland and Glover, 2016). Warland et al.'s (2015) international

internet survey sought the perspectives of 1714 women who had experienced a stillbirth after 28 gestational weeks. Of the 1077 women who had experienced altered movement, 320 (29.7 %) reported that they had contacted their care provider to report their concerns, and had been reassured without any advice to monitor further.

1.2. Guidelines for the management of reduced fetal movement

Motivated by Government targets to reduce stillbirth rates across the UK, NHS England introduced the *Saving Babies' Lives Care Bundle* ('Care Bundle') (O'Connor, 2016). This initiative aimed to tackle stillbirth and early neonatal death by bringing together interventions exemplifying 'known best practice' (p. 12) in four key areas of care, one of which was 'Raising awareness of reduced fetal movement'. The second version of the Care Bundle (NHS England, 2019) addressed concerns about increases in obstetric intervention and rising rates of induction of labour, preterm birth and caesarean section, which occurred alongside a 20 % reduction in the stillbirth rate during the first Care Bundle's implementation period (Widdows et al., 2018). Each version of the Care Bundle includes a checklist to guide healthcare professionals through the management of reduced fetal movements, incorporating key guidance from the Royal College of Obstetricians and Gynaecologists (Whitworth et al., 2011). Healthcare professionals are encouraged to ask about women's experiences of movement; investigate the health of the woman and baby using obstetric technologies; and escalate appropriately, including expediting the birth where the woman is at or over 39 gestational weeks or, prior to this gestation, where there are 'objective concerns' about the pregnancy (NHS England, 2019, p. 15).

1.3. Impact of strategies to raise awareness of and improve practice relating to fetal movement

The AFFIRM trial, which ran in maternity hospitals in the UK and Ireland from January 2014 to December 2016, explored the impact on service demand and stillbirth rates of a package of care comprising strategies for increasing pregnant women's awareness of the need for prompt reporting of reduced fetal movement, followed by a management plan for the identification of placental insufficiency (Norman et al., 2018). This research indicated that this care package did not significantly reduce the risk of stillbirth, concluding, 'The benefits of a policy that promotes awareness of [reduced fetal movement] remain unproven'. Concerns have since been raised that encouraging awareness of fetal movement is harmful because it is not proven to reduce stillbirth and has been associated with increased induction of labour, caesarean section and post-neonatal deaths, and more prolonged admissions to the neonatal unit (e.g. Walker and Thornton, 2018; Saunders and Griffin, 2019).

The study reported in this paper is part of a growing body of research seeking to improve care following altered fetal movement. By observing fetal movement practice and through discussions with midwives and obstetricians (referred to as 'healthcare professionals' for the rest of this paper), we aimed to gain in-depth knowledge of how practice and clinical guidance relating to altered fetal movement are perceived, enacted and experienced by these healthcare professionals, and explore the relationship between recommended fetal movement care and actual fetal movement care.

2. Methods

2.1. Approach

A focused ethnographic approach was used, comprising observation, formal semi-structured interviews, informal verbal accounts, and document analysis.

Ethnography is well suited to the study of experiential aspects of healthcare and safety problems involving interactions among a range of human and non-human elements (Dixon-Woods, 2003; Savage,

2006). Pink and Morgan (2013) describe how short-term 'focused' ethnography in healthcare maintains the first-hand involvement of the ethnographer but takes 'a more deliberate and interventional approach to that of long-term participant observation' (p. 353), with researchers stating their intentions clearly, and positioning themselves at the centre of the action right from the start. This description aligns well with the approach in this research, where pre-defined aims were communicated openly to participants, and the primary interest in fetal movement provided clear structure to the field of enquiry.

The way that ethnography draws together findings from different methods provides opportunities for researchers to corroborate their sources, and identify different ways of knowing and understanding the same phenomena (Savage, 2006; Wolcott, 2003). In this study, observation provided direct access to the routine and mundane aspects of care that healthcare professionals might not think worth mentioning in interviews (Hammersley and Atkinson, 2007; Green and Thorogood, 2014). Through interviews and informal accounts, we gained insight into healthcare professionals' own perceptions and experiences of changing fetal movement guidelines and practice. Interviews were also an opportunity to explore any disparities between recommended, reported and observed practice. A detailed analysis of national and local clinical guidelines provided a foundation for exploring the relationship between work-as-imagined and work-as-done (Clay-Williams et al., 2015). A close reading of information leaflets distributed to women and any relevant literature displayed in the maternity units was undertaken to understand the context in which healthcare professionals were responding to fetal movement concerns.

Situated within a constructivist paradigm, this research is underpinned by a relativist ontology according to which realities are apprehensible as situated mental constructions (Guba and Lincoln, 1994). This paradigm assumes the inquirer and object of inquiry to be mutually influential, with findings 'created' through data collection processes, which are transactional and subjectivist.

2.2. Positionality

The influence of the personal characteristics of the fieldworker (gender, ethnicity, age, appearance, experience, et cetera) within ethnographic work is often not discussed in the context of hospital ethnography (Wind, 2008). As a visibly pregnant midwife, the first author (who completed all data collection) was acutely aware of the various ways in which *who she was* might influence how data were gathered and analysed. Where the ethnographic researcher enters the field with a degree of 'insider' insight, there is potential for certain phenomena to go 'unseen' because they are no longer remarkable, or for long-held views to shape how themes are understood and represented.

2.3. Reflexivity

A range of strategies were used to promote critical distance and reflexivity, including prolonged, focused observation of particular spaces, equipment or practices 'to make the familiar strange' (Wolcott, 2003)

and the use of themed maps (see Clarke's (2005) Situational Analysis), which required the first researcher to comb through findings and 'pull in' relevant details that might otherwise have been overlooked. Reflective memo-ing and discussions within the wider research team, with a range of backgrounds, were opportunities to explore and challenge individual interpretations and potential bias.

2.4. Sites

Two maternity units were chosen from among 20 Hospital Trusts that participated in an evaluation of the first Care Bundle (Widdows et al., 2018). Each of these Trusts had been allocated to one of four categories (innovator, early adopter, late adopter, and low adopter) depending on when the Care Bundle had been introduced into their local practice, and the extent to which its recommendations had been implemented at the time of the evaluation. From within these categories, maternity units from one 'innovator' Trust and one 'low adopter' Trust were identified and invited to participate in this study. The rationale was that the inclusion of two units at seemingly different stages in the Care Bundle implementation process, but with comparable resources, services and birth rates (see Table 1), would provide useful opportunities for contrast.

2.5. Data collection methods

Between January and March 2018, the first author spent 16 days (over 100 h) at Site 1 and 15 days (over 80 h) at Site 2, observing fetal movement care episodes and relevant unit activity and staff interactions on the Antenatal Day Unit, Triage and Antenatal Clinic.

During this initial phase of fieldwork, a wide range of informal verbal accounts from participating doctors and midwives were gathered and documented in fieldnotes with consent, and their content was analysed alongside other data. Additionally, the researcher conducted formal semi-structured interviews with one obstetrician and seven hospital-based midwives at Site 1, and one hospital-based midwife at Site 2.

Between March and September 2019, the researcher returned to each unit to speak again to the midwives leading the Care Bundle implementation, and, at Site 2, attended a multidisciplinary meeting discussing the second iteration of the Care Bundle. At this time, the researcher interviewed four community midwives and one obstetrician at Site 1, and one obstetrician at Site 2.

Handwritten fieldnotes and memos were produced during or shortly after periods of observation, and turned into word-processed accounts within 48 h. Fieldnotes were numbered chronologically, and are referred to by these numbers in this paper. Data analysis commenced during fieldwork so that early findings could feed iteratively into observation and interview schedules. Formal interviews were audio recorded and transcribed, whilst the content of informal accounts was documented in fieldnotes. Despite women's perspectives not being the primary focus, they were often heard by the researcher during care episodes and captured in fieldnotes. Access to care plans documented in paper or electronic

Table 1
Site characteristics.

| Feature | Unit 1 | Unit 2 |
|---|--|---|
| Level of adoption of Care Bundle recommendations (at time of SPiRE) | 'Low adopter' | 'Innovator' |
| Hospital type and location | Main acute hospital site for a Foundation Trust providing care across parts of the Midlands | Foundation Trust providing a range of acute hospital services at one site in the North of England |
| Births per year | Approximately 3000 | Approximately 2800 |
| Care Quality Commission ^a rating 2016 | Overall – requires improvement; maternity and gynaecology – good | |
| Demographics | Based on 2011 census data, >97% of local residents identify as White. In the top 20% of the most deprived districts in England, based on 2019 Indices of Multiple Deprivation. | |
| Service overview | Antenatal clinic, ultrasound, antenatal day unit, birth centre, and antenatal and postnatal wards. | |

^a The independent regulator of health and social care in England.

Table 2
Overview of sample and data collection methods.

| Data collection method | Participant type | Sample size |
|---|------------------|-------------|
| Observation of care episodes (n = 52) | Midwives | 19 |
| | Obstetricians | 15 |
| | Sonographers | 2 |
| | Women | 40 |
| Formal semi-structured interviews (audio-recorded) (n = 15) | Midwives | 12 |
| | Obstetricians | 3 |
| | Obstetricians | N/A |
| Informal accounts | Midwives | |
| | Sonographers | |
| | Support staff | |
| | Obstetricians | N/A |
| | Midwives | |
| Observation of unit activity, including MDT meetings | Obstetricians | N/A |
| | Midwives | |
| | Sonographers | |
| | Support staff | |

notes was requested in order to explore how networks and records of care pathways developed around fetal movement concerns. Table 2 summarises the sample and data collection methods.

2.6. Participants

Table 3 provides information about participant inclusion and exclusion criteria.

Thirty-six healthcare professionals (midwives, obstetricians and sonographers) and 40 pregnant women (39 between 28 and 41 gestational weeks, one at 24 gestational weeks) participated in the study through having their practice or care observed across the 52 fetal movement care episodes. Some women participated in more than one care episode, with the researcher observing their initial assessment, follow-up monitoring, and, in one case, consultant review.

Twelve midwives and three obstetricians additionally shared their thoughts in 15 semi-structured interviews. Many more participated by consenting to the observation of their involvement in unit activity, or by sharing their perspectives in informal verbal accounts. The experience of healthcare professionals ranged from several years to many decades, with contributions from obstetric consultants and registrars, and midwives working in Antenatal Day Units, Triage and community settings, some of whom had specialist and/or coordinating responsibilities. Most of the midwives had worked in more than one setting prior to their current roles; some had experience of midwifery work in both hospital and community settings.

Owing to the small scale of the study, and to prevent perspectives being attributed to specific contributors, quotes are not linked to any details about healthcare professionals beyond their basic clinical role, and, in the case of midwives, whether they worked at Site 1 or 2 in the community or hospital setting. When discussing this research, female gendered words are used to refer to participants who were midwives or pregnant, as all those who contributed from within these two categories were women. To protect the anonymity of the relatively few obstetrician participants, gender neutral pronouns are used and information about Sites is omitted. When discussing other research, our

use of gendered language is determined by the researchers' own descriptions of their study participants.

2.7. Ethics

Ethical approval and permission to access the research sites were granted by the North East – Tyne and Wear South Research Ethics Committee (ref: 17/NE/0347) and the Research and Development groups linked to the individual sites.

Personal data have been processed and stored in accordance with the Data Protection Act 1998. Study documentation provided sufficient detail to participants about the data being collected and what was happening with these data to comply with General Data Protection Regulation (GDPR) transparency requirements.

Consent for observing in clinical settings was arranged at the unit level; individual healthcare professionals were provided with a staff information leaflet and could opt out of being observed. Informed written consent was secured prior to interviews. Healthcare professionals attending group meetings and events were informed of the researcher's presence and focus, but their individual consent was not formally sought, as no identifying details were recorded. Women were given a patient information leaflet and informed of the researcher's purpose in the unit by their case midwife, who asked if they consented to the researcher providing more information about the study. Verbal consent from women and any companions was required for the researcher to observe their care.

2.8. Data analysis

Data were analysed using a modified constant comparison approach (Charmaz, 2006). Diverse texts, including fieldnotes, interview transcripts, memos, policy documents, and guidelines, were read line-by-line, and phrase-by-phrase. These documents – representing a range of data sets – all carried considerable weight in the data analysis process. Fieldnotes, interview transcripts and memos were initially analysed and compared chronologically. However, the analytic process was iterative, with data gathered earlier in the project often revisited in light of new findings, and emergent findings informing the approach to later data collection.

Analytic codes and categories were constructed and developed to shape theory with a strong foundation in the data. Comparisons were made at each stage of the process, facilitating the constant advancement and testing of theory. Findings were triangulated through the comparison of data gathered via different methods. Importantly, key themes featured consistently across the data sets.

JC led the analysis, in regular dialogue with NA and LKS, who both reviewed early fieldnotes and interview transcripts to inform discussion of emergent themes and theory. In keeping with the ethnographic tradition, the approach to data analysis was iterative and occurred simultaneously with data collection (Charmaz, 2006; Hammersley and Atkinson, 2007). The software package NVivo was used to help manage the data and analytic processes, with codes and categories refined over time into a coding framework.

Table 3
Inclusion and exclusion criteria.

| Participant category | Inclusion criteria | Exclusion criteria |
|------------------------------------|--|--|
| Maternity healthcare professionals | Employed in one of the two participating maternity units with input into care relating to altered fetal movements. | Do not input into care relating to altered fetal movements. Do not consent to participate. |
| Pregnant women | Attending participating maternity units with altered fetal movement concerns, or having reported altered fetal movement on arrival; over 18 and able to give informed consent to having their care observed. | No fetal movement concerns at time of attending maternity unit. Under 18 years of age; unable to give informed consent. Where professional interpreter services are not available, unable to read and communicate in English to such a level that study information can be understood and informed consent obtained. |
| Women's companions | Do not explicitly object to the researcher being present. | Express an explicit objection to the researcher being present. |

3. Results

Data analysis identified key findings presented here under four headings: *Challenges in (self-)diagnosis*; *'Coaching' and 'upskilling'*; *Conflicting evidence*; and *'Monitoring for reassurance?'*. Within these categories, some tensions in fetal movement practice were identified, as well as the strategies employed by healthcare professionals in their efforts to resolve them.

3.1. Challenges in (self-)diagnosis

Despite a strong, consistent message that women should monitor fetal movements, get to know what was normal for their baby, and report any concerns, most healthcare professionals acknowledged that this could be a complex task, with some women unable to discern a clear pattern:

There are some women who don't know what normal is, and would never be able to tell you, because maybe there isn't normal for that baby in that pregnancy.

[(Obstetrician, Interview P)]

A number of healthcare professionals expressed that they had difficulty explaining the parameters of acceptable variation in a way that women could understand, without contradicting advice that a reduction in movement should never be considered normal. As one midwife described:

It's getting them to understand that the pattern of movements might change, but you should see like a regular what I call slow change in that pattern of movements. As opposed to one day having movements and the next day having none.

[(Hospital Midwife, Site 1, Interview E)]

Some clinicians felt that the move away from kick counting approach and fixed alarm limits had resulted in advice that was 'more woolly' (Community Midwife, Site 1, Interview M), although there was wide acceptance among clinicians that it was now right to focus on altered fetal movement more broadly.

Discussions during care episodes provided insight into women's perspectives regarding obstacles to identifying changes in their baby's movement accurately, for example, being busy at work, experiencing pain or abdominal tightenings, or the baby having hiccoughs, significantly changing its position, being at a very early gestation, or 'running out of space' towards full term. A few women felt that there was something specific about their baby or pregnancy that made it consistently hard for them to monitor the movement, such as a baby that was 'normally' quiet or an anterior placenta. Healthcare professionals echoed these ideas and particularly emphasised the notion that women who were 'engrossed' in other activities could be 'oblivious' to fetal activity (Hospital midwife, Site 1, Interview I).

A further challenge reported by many healthcare professionals was their belief that a small number of women had learnt to fabricate reduced fetal movement in order to access earlier induction of labour. However, according to most healthcare professionals, a more significant barrier to women diagnosing a 'true' change in fetal movement was very high levels of anxiety, exacerbated by a prevalence of 'horror stories', in particular about stillbirth, shared online and among women's friends and family (e.g. Community Midwife, Site 1, Interview O). Women's accounts often supported this view. Some healthcare professionals suggested that an anxious woman might struggle to feel fetal movement in the first place, or that women's reports of reduced fetal movement could be a manifestation of wider anxiety. One obstetrician suggested that the current approach had made the symptom 'an absolute terror', elaborating:

Because we are then saying to women that your baby must have a pattern of movements, you must know what that pattern of movements is,

and if you don't get it, then your baby's going to die. And that is genuinely how women feel [...] Whereas actually, before 28 weeks, they can be all over the place. [...] But we're giving women this information at booking, and asking about fetal movements at every opportunity. And if you ask it that often, you sort of sit there and go 'well, should I be feeling these movements, should I have a pattern by now?'

[(Obstetrician, Interview J)]

This obstetrician was not alone in implying that the heightened focus on fetal movement might have rendered the symptom less useful, causing, in their view, some women to focus on it to such an extent that they started to doubt their own experience.

3.2. 'Coaching' and 'upskilling'

Healthcare professionals worked hard to educate women about how they could monitor activity more accurately. A number of midwives indicated that women should create dedicated opportunities to focus on movements, and many stated that seeing movement and feeling it with one's hands were equally valid ways of experiencing fetal activity. As one explained:

You can't just rely on one sense [...] you've got to use touch, you've got to use sight, you've got to use what you can feel on the inside.

[(Hospital Midwife, Site 1, Interview I)]

The majority of midwives suggested that it is helpful if a woman can 'test' her experience of altered movement prior to calling a midwife, particularly if she is unsure about what she has felt. Commonly recommended self-assessment measures included the woman lying down in a quiet place, placing her hands on her abdomen and watching and feeling for movements, and drinking or eating in an attempt to stimulate fetal activity. At Site 1, one midwife confirmed that this was a strategy encouraged on the Antenatal Day Unit at the team level. She explained:

We need to be teaching women those skills, to give them the confidence to be able to assess their own fetal wellbeing. Because it's a very costly thing for women to come in, time-wise and finance-wise.

[(Hospital Midwife, Site 1, Interview G)]

According to this midwife, there was a need to 'skill women up', not only to allow resources (those of the Trust and women) to be used more efficiently, but so that women could reassure themselves between episodes of fetal monitoring. At times, this approach seemed to run counter to recommendations that women should seek immediate help if worried about movements. Indeed, it frustrated at least one midwife at Site 2, who associated such advice with 'dismissing' concerns. She exclaimed, 'If she tells you her baby's not moved all day, don't go and tell her to drink, bring her in!' (Hospital Midwife, Site 2, Interview B). Of note is that, at the time of this research, the Royal College of Obstetricians and Gynaecologists' guidance for reduced fetal movement stated that women who were 'unsure whether movements are reduced' after 28 gestational weeks should be advised to lie on their left side and focus on fetal movements for 2 h (Whitworth et al., 2011).

3.3. Conflicting evidence

Several midwives made the point that it could be challenging when accounts of fetal movement (for example, what the woman felt, what the cardiotocography machine detected, and what the midwife felt, heard and saw) did not agree. According to both Sites' guidelines, regardless of how 'normal' a cardiotocography trace was in terms of fetal cardiac activity, if it contained no evidence of fetal movement it could not be evaluated as reassuring. One function of the 'coaching' activity described above was to create agreement between these various forms of evidence. Women were sometimes praised for documenting their experience of movement in a way that was congruent with what

the midwife observed, or nudged into action when they missed opportunities to document activity. For example:

The midwife, woman and her mother are all watching the trace. The midwife explains, 'Just waiting for it to pass now' and 'it's beautiful'. The woman plays with her hair, she seems bored. Suddenly the midwife exclaims, 'Ah, you didn't see that, did you?' 'I didn't feel it,' the woman replies. 'But you could see it clear as day,' the midwife tells her, 'it 'lifted the toco right up'. She continues, 'If you were looking like I was... that's why you need to lie and look.'

[(Fieldnote 22)]

The tension between 'subjective' (provided by the woman) evidence and 'objective' (machine-generated) evidence of fetal movement was central to debates about the appropriate use of induction of labour following altered fetal movement. One midwife at Site 2 questioned the value of undertaking regular cardiotocography and ultrasound monitoring if women were going to have their labours induced regardless:

They'll keep having scans if they get reduced movements. The scans might be perfectly normal, good growth. And we do end [up] inducing. Where's the evidence there? You know, the evidence should be the scan. But the woman still says the baby's not moving. We have some women that have daily [cardiotocography] for movements. What is the best thing we can do? What is the best?

[(Hospital midwife, Site 2, Interview 1)]

This midwife's closing remarks highlight her profound uncertainty about the optimal way to reassure and care for women with recurrent reduced fetal movements in particular.

3.4. 'Monitoring for reassurance'?

It was widely expressed by healthcare professionals that cardiotocography was reassuring to women for its ability to provide 'an indication of fetal wellbeing, at that point' (Hospital Midwife, Site 1, Interview 1). Midwives typically ended care encounters by asking the woman if she was reassured, and took care to document a positive response. These acts contributed to the impression that monitoring was sometimes offered as much to reassure mothers as to generate 'objective' evidence of fetal wellbeing. At the same time, midwives and doctors stressed that cardiotocography only provided information about fetal wellbeing *in that moment*. Their consistent advice that women should always remain vigilant and never hesitate to come back – regardless of any normal investigations *on that day* – were reminders that total reassurance on the part of women was not only impossible, but also risky.

Some healthcare professionals expressed concern about what happens to women's anxiety when the 'reassuring' monitoring machine is inevitably stopped, and they must fall back on their own senses to tell them whether their baby is moving and well. A number of healthcare professionals suggested that monitoring processes could generate further anxiety in some mothers. For example, by creating the impression that the baby *must* be at risk to merit this attention, or because they required women to enter the stress-inducing hospital environment. Achieving reassurance through monitoring was represented by healthcare professionals and women as more complicated in the case of recurrent fetal movement concerns. As one midwife explained:

[...] under those circumstances, if they're not feeling them, telling them to go away and come back if they're worried just seems a nonsense, doesn't it? [...] in truth, if they could, they'd probably be here on a monitor 24/7.

[(Hospital Midwife, Site 1, Interview D)]

One obstetrician argued that it was only to be expected that the majority of investigations offered to women with altered fetal movement 'are going to be normal and reassuring', and that healthcare

professionals should be glad to have those results, which can give them the 'power' to 'delay things a bit'. However, they continued:

[...] nothing is a hundred percent [...] we do know that some of these stillbirths still happen in the face of these normal investigations. [...] So it's not my gut reaction to go, 'Oh, they're all normal, let's just not do it.'

[(Obstetrician, Interview A)]

This comment captures well the ambivalence expressed by the majority of healthcare professionals regarding the value and limitations of obstetric technologies when it came to making plans for induction of labour following perceived altered fetal movement. There was a strong sense that such investigations were never 'a hundred percent', and reassuring investigations could still be followed by a stillbirth. Nonetheless, healthcare professionals seemed glad to have these results, which may or may not cause a slight delay in the timing of induction.

Some healthcare professionals described how challenging it was to hold the relatively rare but devastating risk of stillbirth in balance with other potential harms, for example, iatrogenic harm linked to early-term induction of labour. Associated with this task was the fear among healthcare professionals that their practice could somehow contribute to a perinatal death. One obstetrician described the 'underlying anxiety' of obstetricians and midwives who must constantly ask themselves:

What if I miss something, I'll get sued. What if I miss something and a baby dies and I devastate this family because I haven't acted as I could have done?

[(Obstetrician, Interview J)]

One midwife linked this way of thinking to a 'mass culture' of defensive practice, which ensured healthcare professionals were constantly aware of the risk of stillbirth, even where all the 'objective evidence' suggested that the woman and baby were well (Hospital Midwife, Site 1, Interview H).

4. Discussion

This research originated from concerns that fetal movement practice was varied, and that this variation had serious implications, with healthcare professionals contributing to avoidable stillbirth by dismissing women's concerns. In this study, we did not see evidence of this, with healthcare professionals' responses to reports of altered fetal movement mostly consistent and in line with current UK guidance. However, our findings highlight new concerns, with healthcare professionals associating challenges in diagnosing altered fetal movement with increased maternal anxiety and high rates of monitoring and intervention in pregnancies that were *perhaps* never at risk. This section explores these two issues – discussed here as the unintended consequences of changing fetal movement guidelines – with reference to the wider literature, and considers how fetal movement practice might be refined to facilitate timely and appropriate intervention in those pregnancies that need it the most.

4.1. Anxiety in pregnancy

In this research, healthcare professionals linked challenges in identifying altered fetal movement and raised awareness of stillbirth with increased anxiety among mothers. Monitoring practices intended to reassure were thought in some cases to add to maternal anxiety, which could make it harder for women to monitor their baby's movements accurately. The relationship between fetal movement monitoring and anxiety in pregnancy is unclear. A 2015 Cochrane Review indicates that fetal movement counting tests can cause maternal anxiety, but that routine fetal movement counting is associated with reduced anxiety compared to undefined fetal movement counting (Mangesi et al., 2015). The SPiRE

evaluation (Widdows et al., 2018) reported that receiving information about fetal movement made most women feel calm. However, one third of pregnant women participating in SPiRE described experiencing some anxiety over monitoring their baby's movements. A recent survey of women's experiences of using online resources to aid self-diagnosis and help-seeking in the perinatal period reported that 62 % of respondents with health concerns were worried about fetal movement (Mackintosh et al., 2020). The authors suggest a need to balance increased public awareness of pregnancy risks with a consideration of unintended public health consequences, highlighting the potential for self-monitoring activities to increase feelings of responsibility and anxiety among pregnant women.

Healthcare professionals in this research emphasised the importance of women focusing on fetal movements and experiencing them using 'all their senses'. This approach echoes that described in Akselsson et al.'s (2017, 2020) research into the effects of Mindfetalness (a practice where women are advised to lie on their side and monitor movements for 15 min per day at a time when the baby is active) on pregnancy experiences and outcomes. In a study exploring 104 women's experiences of using this method, 89 % were positive towards the intervention, associating it with beneficial effects including relaxation, relationship building, decreased worry, and more awareness of the unborn baby (Akselsson et al., 2017). Therefore, the incorporation of Mindfetalness into future fetal movement guidance might be one way to promote both timely reporting of fetal movement concerns and more positive pregnancy experiences.

4.2. Improving the reliability of the symptom

A particular challenge identified in this research was when (subjective) maternal accounts of fetal activity did not agree with the (objective) evidence generated through obstetric technologies, in particular cardiotocography. Such discordance contributed to healthcare professionals' concerns that women's experiences of fetal movement could be unreliable, and that they were intervening in some pregnancies without good cause. The Mindfetalness method is one approach to fetal movement monitoring that may reduce anxiety in pregnancy, with the potential to create more reliable accounts.

Another possible solution is to develop technologies capable of monitoring fetal activity accurately over longer periods of time. A 2021 trial of fetal movement-counting using optical fibre sensors suggests that this technique, with its multiplex capability, flexibility and minimal size, is an 'attractive solution for reliable monitoring of antenatal fetal movements' (Abeywardena et al., 2021, p. 48). In this small prototype trial, involving seven examinations on three volunteers, the optical fibre sensors were found to be more sensitive than the woman's perception of fetal movements. With adaptations, the authors conclude, a wearable belt could be developed for continuous monitoring of fetal movements. Such a device could function to test or support the accounts of those who struggle to make sense of fetal activity. However, the practical and theoretical implications of this technology would be considerable, and, based on the mixed effects of monitoring technologies in this research, hard to predict.

One concern raised in this study was that women were being encouraged to focus on fetal activity at early gestations, when many of them do not yet feel strong, reassuring movements. Highlighting the risks associated with iatrogenic prematurity following preterm induction for fetal movement concerns, Walker et al. (2020) have suggested that women should be told *not* to worry about reduced or altered movements before 36–37 weeks, because intervention at that stage 'is likely to do more harm than good', but to report movement changes after 36–37 weeks, at which point 'if the scan or fetal heart rate are abnormal then something can be done'. However, such recommendations will not necessarily be welcomed by those who have long campaigned to raise awareness of fetal movement, and who believe that highlighting this risk factor from early in pregnancy remains key to saving babies' lives.

4.3. Targeting obstetric intervention

Healthcare professionals in this study associated challenges in identifying a significant change in fetal activity with increases in obstetric intervention, including in pregnancies where there were no 'objective' concerns. The second iteration of the Care Bundle was published during this research, highlighting the risk of 'intervention creep' associated with stillbirth-prevention strategies, and the importance of focusing medical intervention on those pregnancies 'genuinely at risk of complication' (NHS England, 2019, p. 8). There is ongoing debate about the effects of raising awareness of fetal movements from early in pregnancy. The influential AFFIRM trial (Norman et al., 2018) indicated that contemporary fetal movement practices might be contributing to an increase in obstetric intervention with associated iatrogenic harms, without significantly reducing the stillbirth rate. Based on this, some have raised concerns that the current approach is causing 'more harm than good' (e.g. Saunders and Griffin, 2019; Walker et al., 2020; Walker and Thornton, 2018).

Hezell (2020) proposes that it is not raising awareness of fetal movement among women that is problematic, but the way in which healthcare professionals are responding to their concerns. In support of this, Hezell cites Akselsson et al.'s (2020) randomised trial into the effects of Mindfetalness on perinatal and obstetric outcomes. The Mindfetalness intervention was associated with increased attendance for fetal movement concerns alongside a modest reduction in admissions to the neonatal unit and babies born small for their gestational age, without the increase in rates of caesarean section and induction of labour reported in other fetal movement research. This difference is attributed to the fact that this intervention focused on pregnant women and not the education of healthcare professionals and recommended intervention. However, unpicking these two elements of fetal movement practice is difficult, particularly as the AFFIRM trial explored the impact of a package of care intended both to raise awareness of fetal movement and promote a standardised clinical response.

The ethnographic research reported here indicates some potential causes of UK healthcare professionals adopting an interventionist approach following reports of altered fetal movement, highlighting the uncertain and sometimes conflicting evidence that they must work with as they attempt to safeguard babies *and themselves* in the context of a target-driven project to reduce stillbirth. Studies of the experiences of midwives and obstetricians provide evidence, in agreement with this research, that maternity healthcare professionals often feel vulnerable in their roles, and fear adverse events and the blame, litigation, trauma, and poor treatment that can follow (Cauldwell and Bewley, 2016; Hunter et al., 2017; Kirkham and Stapleton, 2000; Leinweber and Rowe, 2010; Rice and Warland, 2013; Schröder et al., 2016; Slade et al., 2020). It follows that guidelines advising healthcare professionals to do less or act later (for example, *not* to offer induction of labour prior to 39 gestational weeks where there are no 'objective concerns' (NHS England, 2019, p. 15)) might be insufficient to ensure a more targeted use of interventions when many healthcare professionals feel vulnerable to blame in the event of a serious adverse event.

4.4. Unintended consequences

In this research, most healthcare professionals identified increased anxiety, monitoring and intervention as the unintended consequences of changes in fetal movement practice linked to recommendations in the *Saving Babies' Lives* Care Bundle. The original Care Bundle set out its aim to reduce 'unwarranted variation' in stillbirth rates across the country (O'Connor, 2016, p. 11). Whilst the dominant message in the first Care Bundle is one of risk reduction, the document also references the 'significant economic burden to the health and social care system' that can result 'when something goes wrong' (O'Connor, 2016, pp. 26–27). It is not uncommon for quality improvement initiatives to be financially and politically motivated (Hunter and Segrott, 2008), with the

effect that new clinical standards might be introduced and maintained despite an inconclusive evidence base. Without wishing to challenge the desirability of the Care Bundle's goal, it is important to recognise the potential dangers of rolling out practice recommendations on a large scale, when their benefits are unproven, and their wider impact untested.

Research from across maternity, healthcare and the social sciences indicates that attempts to standardise practice through, for example, care pathways, new technologies and clinical guidelines can impact on workloads, clinical processes, inter-professional roles and relationships, and patient safety and experiences in unexpected and potentially harmful ways (Berg, 1997; Bick et al., 2009; Hunter and Segrott, 2008, 2010; Shackleton et al., 2009; Small et al., 2021; Timmermans and Epstein, 2010). Public health literature and healthcare research indicate that the full impact of proposed interventions might be tested through 'dark logic' models, designed to anticipate and mitigate their most plausible unintended harmful impacts and associated mechanisms (Bonell et al., 2015; Catlow et al., 2022; Lorenc and Oliver, 2014). This ethnographic study provides further evidence that safety initiatives in maternity care might have unanticipated effects. Therefore, it strengthens the case for a systematic approach to evaluating a priori the possible harms and benefits of future iterations of clinical guidance aiming to standardise fetal movement practice and reduce avoidable stillbirth.

4.5. Strengths

This ethnographic study provides novel insight into the experiences and perspectives of healthcare professionals as they respond to women's reports of altered fetal movement. Fieldwork provided an opportunity to observe fetal movement work in context, with important human and non-human influences observed, including some that may well have remained 'unseen' had the research relied on healthcare professionals' accounts alone. In its aims, methods and findings, this study is markedly different from, and complements, other recent research into fetal movement practice and stillbirth prevention, elucidating potential causes of some of the effects reported in larger-scale studies, e.g. high rates of attendance with fetal movement concerns (Widdows et al., 2018), and an increase in obstetric intervention (Norman et al., 2018).

4.6. Limitations

This was a small ethnographic study undertaken at two UK maternity units that were comparable in terms of size, services, and demographics, although at different stages of implementing the Care Bundle recommendations. Comparing two very different maternity units might have created greater opportunity to contrast practice. With a study of this size, it is not possible to know the extent to which the findings are transferable to other Trusts. However, given the national application of the Care Bundle, and global interest in altered fetal movement as a risk factor for stillbirth, it is likely that the in-depth data generated here will have relevance beyond these two sites.

A limitation relating to the choice of sites was the relatively homogenous populations that they served. Women who identified as black, Asian or belonging to any other minority ethnic group (in the context of UK healthcare) were barely represented among those attending. Given that black and Asian families in the UK are significantly more likely to be affected by stillbirth (Draper et al., 2022), particular effort should be made to ensure these communities are represented in future research exploring fetal movement practices. Conversely, both Trusts were in the top 20 % of the most deprived districts in England (Ministry of Housing, Communities, and Local Government, 2019). Based on this, and information provided by women about their occupation, it is likely that white women living with a high level of socio-economic deprivation – another risk factor for stillbirth (Draper et al., 2022) – are well represented in the data.

5. Conclusions

This ethnographic study provides novel insight into how practice and clinical guidance relating to altered fetal movement are perceived, enacted and experienced by UK maternity healthcare professionals. Healthcare professionals across both sites appeared to take women's accounts of altered fetal movement seriously, demonstrating consistent practice in line with the recommendations contained in current UK fetal movement guidelines. However, they often doubted the reliability of the symptom, particularly when there was conflict between 'subjective' evidence and 'objective' evidence of activity. Increases in anxiety, monitoring and intervention in pregnancies where there were no 'objective concerns' were highlighted as potential unintended consequences of a heightened focus on fetal movement.

As guidance for the clinical management of altered fetal movement evolves, we need to learn more about how healthcare professionals should engage in conversations about fetal movement and stillbirth to support safe and positive pregnancy experiences. Research is also required to determine how to refine fetal movement information and practices so that interventions and resources are focused on pregnancies where there is genuine risk of harm.

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CRediT authorship contribution statement

Julia A. Clark: Writing – review & editing, Writing – original draft, Investigation, Formal analysis. **Lucy K. Smith:** Writing – review & editing, Supervision. **Natalie Armstrong:** Writing – review & editing, Supervision.

Data availability

The raw/processed data required to reproduce the above findings cannot be shared at this time due to legal/ethical reasons.

Declaration of Competing Interest

None.

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