Women and Birth 30 (2017) 23–28

Contents lists available at ScienceDirect

Women and Birth

journal homepage: www.elsevier.com/locate/wombi

ORIGINAL RESEARCH – QUALITATIVE

Fetal movements: What are we telling women?

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ARTICLE INFO

Article history:
Received 18 February 2016
Received in revised form 2 June 2016
Accepted 2 June 2016

Keywords:
Reduced fetal movements
Midwives knowledge
Women's knowledge
Management of reduced fetal movement
Kick counting

ABSTRACT

Problem: Information that women receive about the importance of monitoring fetal movements and what to do if there are changes is inconsistent and may not be evidence based.
Background: This paper reports a summary of the kind of messages a group of South Australian midwives ($n = 72$) currently give pregnant women.
Methods: Comment data from two questions in a larger survey asking (1) what information midwives routinely provide to women about fetal movements and (2) their practice regarding advice they give to women reporting reduced fetal movements. Data were analysed using summative content analysis.
Findings: Four main recurring words and phrases were identified. With respect to information midwives give all women about monitoring fetal movements, recurring words were "10", "normal", "kick charts" and "when to contact" their care-provider. Recurrent words and phrases arising from answers to the second question about advice midwives give to women reporting reduced fetal movement were "ask questions," "suggest fluids," "monitor at home and call back" or "come in for assessment".
Discussion: These findings suggest that a group of South Australian midwives are providing pregnant women with inconsistent information, often in conflict with best practice evidence.
Conclusion: As giving correct, evidence based information about what to do in the event of an episode of reduced fetal movement may be a matter of life or death for the unborn baby it is important that midwives use existing guidelines in order to deliver consistent information which is based on current evidence to women in their care.

Statement of Significance:

Problem

Maternal perception of reduced fetal movement is a major contributor to adverse birth outcomes. However, information that women receive about the importance of monitoring fetal movements and what to do if there are changes is inconsistent and often not evidence based.

What is Already Known

Women gain information about what to expect regarding fetal movement and what to do in the event of a reduction in fetal movement from their midwife, other maternity care providers or the Internet.

What this Paper Adds

This paper adds evidence that the midwife participants in this study did not generally use existing evidence based guidelines when giving women information about fetal movement. This resulted in them using varying information and advice, as well as taking variable action in the event that a woman reports an episode of reduced fetal movement.

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http://dx.doi.org/10.1016/j.wombi.2016.06.001
1871-5192/

1. Introduction

Fetal movements are a sign to the woman that her baby is alive and in 'contact' with her.[1] There is little doubt that if an episode of reduced fetal movements (RFM) occurs during pregnancy that this is associated with adverse pregnancy outcomes, especially stillbirth.[2–6] What is much less clear in the literature is what a 'reduction' actually is, for example, "normal" number of fetal movements in 1 h can vary from 4 to 100.[7] However, maternal perception of fetal movements can be variable[8] and depends on many factors including, placental position, decreased amniotic fluid, fetal sleep state, maternal smoking status, parity and body habitus.[9,10] There is no specific number as to what represents a "normal" number of movements and the time in which those movements occur[11] and maternity care-providers should be aware of this when giving information.

Pregnant women receive health care information from many health professionals, however, three studies[12–14] have reported that women preferred to receive this information from a midwife. Women may also supplement this with information sourced on the Internet.[10,15–18] However, information regarding fetal movement available on the internet is of variable quality, readability and accountability.[19] It is therefore very important that maternity care-providers offer pregnant women consistent, accurate and accountable information about fetal movements. Little is known regarding how pregnant women learn about fetal movement[14] and in particular what information and advice is typically offered by maternity care providers. This paper will report findings from a study of South Australian midwives about the kind of messages they say they currently give women regarding fetal movements, as well as an indication of how they said they would manage a woman who contacts them reporting RFM.

2. Participants, ethics, methods

A sample of South Australian midwives ($n = 72$) were surveyed about their knowledge of risk factors for stillbirth immediately prior to an educational workshop on that topic. The 21 question survey was developed by the authors, with five of the questions asking about fetal movement. Three of these five questions were quantitative Likert scale questions which we have previously reported.[21] This paper focuses on the free text comment data gained from two questions in that survey.

Question one consisted of the second half of a two phased question in which participants were asked if they routinely gave information to all women regarding fetal movements. Following giving a yes/no response participants were invited to "Outline what information you routinely give to pregnant women about fetal moments?"

The second question was: Please briefly outline what you would do if a pregnant woman rang you concerned about decreased fetal movement?

3. Data analysis

The data were comment data, gathered as part of a larger quantitative survey where participants were asked to "outline" what they would do, without the ability to ask further questions or for further explanation. The data were therefore not particularly rich, however during quantitative data analysis the authors agreed that there was merit in separate further analysis of these comments due to the important role midwives play in educating pregnant women and preventing stillbirth. We analysed the data using 'summative content analysis' outlined by Hsieh and Shannon.[20] Firstly both authors independently searched the data for recurrence of certain words. Recurring words were identified and quantified in order to identify the most common responses. Then both authors agreed on the common words and chose exemplars of each of the most common responses in order provide a descriptive analysis of the data.

4. Ethical approval

Ethical approval for the study was granted by a University Human Research Ethics Committee. Protocol no. 0000030425 approved on the 12/12/12.

5. Findings

Demographic data and initial quantitative findings have been previously reported,[21] but are repeated here for context. More than one third of the participants were older than 36.1% ($n = 50$), one third had undertaken a hospital based (certificate) training, another third held a university undergraduate degree in midwifery with the remaining third holding a combined degree in nursing and midwifery or university post graduate degree. Most 77.8% ($n = 56$) were currently employed in a public hospital and 48.6% ($n = 35$), had been working for at least 11 years. Nearly all 96% ($n = 69$) held a clinical role. Those in non-clinical roles were researchers or educators.

Participants were asked three questions (previously reported) about their knowledge and practices regarding fetal movements. Findings from our earlier report indicated that 86% ($n = 62$) stated that they routinely gave all women information about fetal movements. A little over 53% ($n = 38$) of the participants knew that the statement "*it is normal for a fetus to move less close to term*" was false, and 35% ($n = 25$) strongly agreed that "*being aware of fetal movement can help reassure the woman that the fetus is well*".

6. Midwives information giving about fetal movement (FM)

Participants were asked if they routinely gave information about fetal movements. If they answered "yes" they were asked to provide a written comment response regarding the type of information that they gave to women. Sixty three participants answered "yes" however, only 72% ($n = 52$) of the participants provided further information about what kind of information they provided. There were four main recurring words from these responses: namely "10," "normal," kick charts," and "when to contact." Table 1 provides details of frequency of responses as well as illustrative quotes for each of these common words and phrases:

We also asked participants to provide us with their written response to this question: "*a woman rings you reporting decreased fetal movements, briefly outline what you would do?*" Ninety six percent ($n = 69$) of the participants provided an answer to this question and their responses fell into 4 main recurring words and phrases: namely "ask questions", "suggest fluids or food" "monitor at home and call back" and "come in for testing." These are tabulated with exemplars in Table 2.

7. Discussion

7.1. Information given

The use of the number 10 seems to be endemic when information regarding fetal movement is given. However, of concern is the level of inconsistency regarding the amount of time needed for the 10 movements to occur. In our study, 42% ($n = 22$) of the participants who responded to this question used the number 10 in their answer but wrote that this was anything from 10 in 10 min, to 10 in 24 h. Other studies have also reported a similar variation in what is considered normal and RFM, with a group of

Table 1
Information midwives give.

Recurring word/phrase	Times occurred (n = 52)	Exemplar quotes
10	22	• *Report if less than 10 movements felt in 24 hours* • *I explain the importance of 10 movements in 12 hours* • *Expect at least 10 in an hour.* • *They need to have 10 movements a day and if not by 9pm at night, ring labour ward*
What is "Normal"/what to expect	17	• *I discuss 'normal' course of fetal movements – provide pamphlet on 'normal' fetal movements* • *I give advice regarding paying attention to baby's movements/learning what is normal for them and seek help if not normal* • *I tell them "its normal for baby to move less close to term"*
When to contact	20	• *Contact IF baby does not move as it normally does* • *Watch 10 per day after 28 weeks. Inform if less and/or change of character* • *Contact when concerned* • *Alert staff if decrease or cease*
Kick chart	8	• *I give out a Kick chart and discuss normal expected FMs per day*

Irish obstetricians and midwives considering 10 movements in 12 h as being the "best" definition,[22] compared with 10 in 24 h gaining the widest acceptance by United Kingdom (UK) maternity care providers.[23] Ten kicks in 2 h was considered the normal 'rule of thumb' in an observational Japanese study of 705 low risk women. They indicated that it should take no more than 35 min to "count to ten" and if it took the mother longer than that that this should be considered RFM.[25] A search of discussion boards (e.g. babyandbump and babycenter[26,27]), frequented by pregnant women suggests that there is a similar level of inconsistency from them when they provide information to each other with the following comments being typical:

- *I'm pretty sure that it's 10 movements per hour and if 2 hours pass without feeling anything, drink a cold glass of water or juice or eat something, then if that doesn't help, then call.*
- *It's 10 in a day. Babies sleep a lot so shouldn't be moving 10 times in an hour – if nothing else, you'd never get any sleep!*
- *I was told 10 a day as well from when you get up until you go to bed.* [typically a 16hr period]
- *I was told 10 an hour. But this doesn't mean 10 EVERY hour.*

Given this inconsistency and the confusion that it is causing, it may be better for maternity care-providers to abandon the use of the number 10 and instead follow evidence based guidelines which suggest that information be given to women about getting to know what is a normal pattern of movements for their individual baby.[28–30]

When providing data about what information they gave to women, 33% of the participants (n = 17) used the word "normal" as part of their response. However, given that there is no consensus as to what "normal" actually is and based on the wildly inconsistent responses from the participants in this study, about the number of movements their pregnant clients can expect, one can only assume that many times this information may not be entirely accurate, consistent, nor even evidence based. To illustrate this, two of the participants mentioned that they would reassure the woman that it was "normal" to feel less movement close to term. This was also a finding made by Warland et al.'s[31] study which indicated that 244 of 795 mothers who had had a stillbirth had contacted their care provider about their concerns regarding RFM and been reassured. However, it is not normal for the well fetus to decrease fetal movements close to term.[32,33] It will therefore be important for future care provider training in this area to explore how to correct this widely held misconception. Giving women standardised information which clearly states this message (i.e. Royal College of Obstetricians and Gynaecologists (RCOG)[34] and Australian and New Zealand Stillbirth Alliance (ANZSA)[35]) is also likely to be important.

Eight of the participants mentioned that they routinely gave all women a fetal kick chart. Fetal kick charts used to be a standard part of antenatal care in the 1970s and 1980s[36] however, due in

Table 2
Participants management of RFM.

Recurring word/phrase	Times occurred n = 69	Exemplar quotes
Ask questions	23	• *Ask when was last movements she noticed* • *Ask if she had any vaginal loss* • *Determine gestation (e.g. 20 wks, you may not expect regular movements)*
Suggest fluids/food	26	• *Ask her to rest 1 hour with cup of tea. Wait and see if FMF, if not for review by midwife to check FM* • *Ask her to sit down with glass of water for 11 hours and monitor* • *Sit down with large glass of very cold water, put hand on tummy for half an hour to 1 hour and observe FMF* • *Drink cold glass of water and sit and relax and pay attention to baby's movements for 1 hour.* • *Drink cold/sugary drink, lay down on couch for 1 hour to have opportunity to feel movements that may have been missed if she is having a busy day*
Monitor at home and call back	28	• *Give advice to precipitate FM then call back after an hour. If still reduced movements invite in for CTG* • *Sit up for 1 hour and monitor movements, Ask her to write down movements then ring me back in 1 hour* • *Count movements for 30 mins then re-contact hospital*
Come in for testing	9	• *Present to hospital to be assessed. – FH, US, CTG* • *Come in for monitoring*

part to the publication of a large multicenter randomised controlled trial in 1988 which found no difference in adverse outcomes between low risk women randomised to 'usual'' or ''counting,'' groups,[37] the practice has been out of vogue for nearly 30 years. Given that the participants in our study were South Australian midwives and the South Australian Perinatal Practice Guidelines (SAPPGs) have not recommended the use of kick charts for nearly three decades,[38] this finding raises questions about, why kick charts are being recommended, what the kick chart is being used for, what information is being given about how to use it and when women using a chart should contact their care-provider. Indeed the question could be asked, why are they still being used? Given the nature of our study the answers to these questions could not be explored, however a suggestion for the continued use of kick charts may be because there is a burgeoning amount of information about them on the internet (e.g. Count the Kicks,[39] Project Alive and Kicking,[40] Still Aware[41]) and perhaps women are asking their midwife about counting kicks. However, assessment of fetal movements using formal fetal movement counting is not recommended because it has been shown to be done inconsistently and with equivocal results.[42] This inconsistency may be related to different methods of counting, different definitions of fetal compromise and different outcome measures used in the studies with many not having been sufficiently powered to detect significant changes in relatively rare outcomes such as stillbirth. It is plausible, however, that raising maternal awareness of fetal movements results in a decrease in perinatal mortality.[43] It is certainly important therefore, that when midwives give information about fetal movements that this information includes strategies about how the pregnant woman might get to know her individual baby's 'normal' pattern of movement.[28–30] It may well be that the participants in our study were offering fetal kick counting as a way for the women in their care to accomplish this, however, the nature of our study did not allow us to confirm this. In any case, a more consistent and evidenced based-approach is for midwives to assist women to get to know their baby by asking a question like ''tell me about your baby's movements?'' and encouraging women to discover what is 'normal' for their baby.[28–30]

The information given about when to contact their care-provider was the most consistent of all responses to this question. Maternal concern and change in perception of fetal movement were cited by most participants as advice they usually give to the women in their care regarding when to contact their maternity care provider. This is advice which is also echoed in the SA PPGs[38] as well as other RFM guidelines from high income countries.[28–30]

8. Management of RFM

Several of the participants said that they would ask questions of the mother who called concerned about RFM. Only some of the questions posed, such as asking for current gestation and querying the baby's normal behaviour, seemed appropriate. Others said that they would ask about the mother's own level of activity that day and if they determined that she had been ''too busy to notice movement'' they would suggest that she ''pay attention'' for an hour or two before asking her to ring back if she was still concerned. A number of respondents did not give any further information about what they would do after the questions were answered. Of concern also, was the nature of the questions which did not always even pertain to the management of RFM such as asking about vaginal loss.

The fact that many of the participants stated that they would suggest the woman consume a cold or sugary drink is of concern because this is not evidenced based information.[29] It is however, very commonly espoused by both the midwives in our study (Table 2) and also with women on pregnancy discussion boards[26,27] who also give this information to each other e.g.:

- *if you're worried sit down after a cold drink and wait to reassure*
- *if 2 hours pass without feeling anything, drink a cold glass of water or juice or eat something*

The fact that 40% ($n = 28$) said they would suggest that if the woman perceived a decrease in fetal movements she should monitor at home and call back if she was still worried is also very concerning because delayed reporting of RFM is associated with adverse pregnancy outcomes.[44,45] It is also concerning because there is the potential for women not to call back at all[19] and therefore, giving this advice may result in a missed opportunity to evaluate fetal well-being. Additionally, even if the woman does call back an hour or so later, this advice causes a delay which may, in some cases, be the difference between life and death for the vulnerable fetus. Most guidelines recommend that the woman present to care without delay.[28–30] Therefore, rather than cause such a potentially catastrophic delay, a better approach would be for the care provider to simply say something like ''I'm concerned that you are concerned'' followed by an invitation to present for evaluation of fetal well-being.

Of those who responded to this question, only twenty (29%) stated that they would ask the woman to immediately present to care for electronic fetal monitoring (EFM). A similar response rate (27.5%) was reported by 795 mothers of stillborn babies who had had an episode of RFM during their pregnancy.[31] Most guidelines for management of RFM[28–30] suggest that all women who report RFM should not wait and at the very least have EFM. It is therefore concerning that this practice was not more evident in our data. Some may consider that EFM is costly and potentially anxiety provoking[46,47] however, studies have shown that this is not the case and timely assessment and management of RFMs may in fact save lives.[24,43,48]

When women report a perception of RFM, it is essential that they receive evidenced-based information and management.[19] This should allow increased opportunities to detect the vulnerable fetus[49] and thus intervention to reduce the risk of adverse pregnancy outcomes.[43]

9. Limitations

When interpreting these results one must consider the context. Participants were gained from a convenience sample of members of the Australian College of Midwives. A smaller percentage of midwives responded to the questions than responded to the survey and reasons for the lack of response from other participants could not be explored. The data consisted of short written responses and therefore were not very rich and there was no opportunity to further explore responses with the participants. There may therefore be limited transferability of these findings to other settings and contexts. However, other larger studies examining maternity care provider knowledge and practices have also made similar findings.[22,23]

10. Conclusions

When pregnant women have questions and concerns about the wellbeing of their unborn baby, it is very important for maternity care providers to give appropriate care and advice. However, there appears to be considerable lack of consistency in information and advice that a cohort of South Australian midwives are providing to pregnant women in this important area. This lack of consistency may well be causing confusion and thus increases the potential for

mismanagement. It is therefore urgent that information about fetal movement is standardised using existing guidelines so that consistent evidence based messages are being given to pregnant women. As all babies are different, it is particularly important that maternity care providers avoid using a specific number, set time periods or alarm limits and instead ask the mother to get to know her unborn baby's pattern of movements so that she can immediately report changes in her baby's behaviour. These findings suggest that midwives are not currently using existing evidence based guidelines. There is a need for further education regarding the existence and appropriate use of guidelines.

Author's contribution

JW conceived of the project, conducted the research, supervised the data collection, conducted the data analysis, and drafted the manuscript. PG materially participated in the design of the research, and critically revised the manuscript drafts for important intellectual content.

Acknowledgments and disclosures

We wish to confirm that there are no known conflicts of interest associated with this publication. We confirm that we have given due consideration to the protection of intellectual property associated with this work and that there are no impediments to publication, including the timing of publication, with respect to intellectual property. In so doing we confirm that we have followed the regulations of the University of South Australia concerning intellectual property. We further confirm that any aspect of the work covered in this manuscript that involved humans was conducted with the ethical approval of the UniSA HREC. Protocol no. 0000030425 approved on the 12/12/12.

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