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Title Page:

A MIXED METHODS STUDY TO EXPLORE WOMEN AND CLINICAN'S RESPONSE
TO **P**AIN ASSOCIATED WITH SUTU**R**ING SECOND DEGREE PERINEAL TE**A**RS
AND EP**I**S**I**OTOM**I**ES **[PRAISE]**

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A MIXED METHODS STUDY TO EXPLORE WOMEN AND CLINICIAN'S RESPONSE TO PAIN ASSOCIATED WITH SUTURING SECOND DEGREE PERINEAL TEARS AND EPISIOTOMIES [PRAISE]

Introduction

In the UK, 300,000 women who sustain perineal trauma (a tear between the anus and vagina) will require suturing (Thiagamoorthy et al., 2013). This is a common event that affects women across a variety of international settings (Barreto-Scarabotto and Gonzalez-Riesco, 2008; Kettel et al., 2010; 2012; Ismail et al., 2013; Smith et al., 2013). Despite the frequency of the event there is a dearth of research which relates to women's experience of perineal suturing or the clinician's decision to suture. Women's experience of suturing was captured by Salmon (1999) who included a sample of six women. Unstructured interviews highlighted that women had inadequate pain relief for suturing, their pain was normalised and women felt they were not taken seriously.

One study measured women's pain during perineal suturing which involved a convenience sample of 68 women (Sanders et al., 2002). The McGill Pain Questionnaire-Short Form (MCPQ-SF) (Melzac, 1987) was used to identify dimensions of pain. The questionnaire was administered following and not during suturing. The sample included three groups of women on a delivery suite (n=8), between 2-44 hours on a postnatal ward (n=34) and at home 6-8 days postnatal (n=36). Data were available for 66 and 67 women who were separated into those who had regional analgesia and those who did not. Women who did not have regional analgesia scored higher on all aspects of the MCPQ-SF (Sensory, Affective and Present Pain Index).

To understand how clinicians managed pain Sanders et al. (2005) investigated pharmacological and non-pharmacological methods of pain relief during labour and perineal suturing. Here, a retrospective survey of 219 Heads of Midwifery with a 95% (n=207) response rate identified a variation of products used. Products ranged from Lidocaine, Lidocaine with adrenaline, Marcaine, Prilocaine and Xylocaine spray. Variation in strength of dose (between 0.5%-2% of Lidocaine) and dose ranges between 20-300 mg of Lidocaine were noted.

In addition, 19 midwives participated in interviews where the focus was about the decision to suture or not to suture the perineum (Cioffi et al., 2010). A retrospective interview prompted participants to talk about two cases where the decision had been to suture, two where the decision was not to suture and one where the decision altered. The findings suggested that the decision to suture was influenced by bleeding and trauma and was supported by their detailed knowledge and experience.

It is known that the technique of suturing (Kettle et al., 2012) or the material used (Kettle et al., 2010) may increase perineal pain in the short term postnatally. Despite this, pain management for perineal repair is highly variable. International variation may be related to factors such as the presence of an untrained birth attendant or a lack of resources (Henderson and Bick, 2005). In the UK, local and national pain management guidance approves the use of 1% Lignocaine infiltrated into the perineum up to a maximum dose of 20 mls during perineal repair (NICE, 2008; Local Guideline, 2008). However, this information does not provide evidence about why the amount is appropriate or effective (Downe, 2004; RCOG, 2004; Henderson and Bick, 2005; NICE, 2008; Kyei et al., 2012). Effective pain management is important in terms of both physical and psychological outcomes and has the potential to enhance the women's overall experience.

The perceived negative experience in response to perineal trauma (Salmon, 1999; Sanders et al., 2002) may lead to fear (Lavender et al., 2006; Waldenstrom et al., 2006) and anxiety (Williams et al., 2005) when women plan subsequent pregnancies. As a result women may seek to control future reproduction (Gottwall and Waldenstrom, 2002) or go on to request caesarean section in order to avoid perineal trauma (Tschudin et al., 2009). It is understandable then how negative birth experience may become correlated with the development of postpartum anxiety, depression and post-traumatic stress syndrome (White et al., 2006; Overgarrrd et al., 2012).

In summary, evidence about women's experience of pain during perineal suturing relies upon a small, old qualitative study (Salmon, 1999) and a small survey (Sanders et al., 2002). In addition, knowledge about pain management decisions emanates from a retrospective survey (Sanders et al., 2005) and one qualitative study (Cioffi et al., 2010). This lack of robust evidence to support how women's pain should be managed during perineal suturing led to the development of this current feasibility study in order to identify what the parameters of a larger study would be (NIHR, 2014). During the design three principal research questions were developed. Firstly, we wanted to discover what factors influenced pain response during perineal suturing. Secondly, we intended to explore whether there was an association between higher rates of anxiety or depression and women's pain scores. Thirdly, we were interested to find out what decisions were made by clinicians about the management of pain during perineal suturing.

Methods

The study adopted a pragmatic approach (Cresswell and Plano-Clark, 2007; Johnson et al., 2007) where the methods of data collection were driven by research questions

(Kivinen and Piironen, 2006). Mixed methods were utilised (O’Cathain et al., 2010). Three methods were used to collect data from multiple sources: observation, self-report measures and interviews. Observations were framed around, ‘The Think Aloud Technique’ where the participants description identified how decisions were made by verbalising thoughts (Jones, 1989; Cioffi and Markham, 1997; Lundgren-Laine and Salanterä, 2010; Cioffi, 2012). Verbalisation of thoughts permits an understanding of how working memory assists in making decisions (Jones, 1989) and this technique had never been used before during perineal suturing. Data were taped and transcribed verbatim, with field notes recorded immediately after observation and interviews to enhance rigour (Cresswell and Plano-Clark, 2007).

Two self-report questionnaires were used to record pain (McGill Pain Questionnaire–Short Form (MCPQ-SF) (Melzack, 1987) and psychological status (Hospital Anxiety and Depression Scale (HADS) (Zigmond and Snaith, 1983). The MCPQ-SF is a one page validated questionnaire (Wilkie et al., 1990) that takes approximately 2 minutes to complete. Sensory and affective pain is measured on a scale that ranges from no pain to severe in relation to 15 descriptive categories. A Visual Analogue Scale (VAS) rates pain felt and is accompanied by a Pain Rating Intensity (PRI) score. We added one question to identify if the pain felt was only related suturing. The validated HADS tool (Hermann, 1997; Crawford et al., 2001; Dickens et al., 2004) can be completed in 2 minutes and separates psychological concepts related to anxiety and depression. The combined score of anxiety and depression measures whether psychological distress is present and if the degree is mild, moderate or severe.

Setting and study sample

The research took place in the North West of England between March and August 2013 in a hospital where approximately 9500 births take place annually. The hospital aims to address the needs of women in deprived and affluent areas. An onsite Midwifery Led Unit and an Obstetric Led Delivery Suite became the main foci for the study as women incurred perineal trauma there. Purposeful sampling permitted multiple perspectives to be captured (Polit and Tatano Beck, 2014).

University, local and national ethical approval (Reference: 12/NW/0874) was provided and permitted access to the study population. Posters and information about the study were placed in relevant clinical areas prior to commencement. Women were provided with information about the study at 36 weeks gestation via the community midwife. LB and EO attended the clinical area on a daily basis. The researchers identified which women were in labour and a labour information sheet was provided at this point. At the same time, midwives or doctors were conferred with to find out if they would be willing to participate and a clinician information sheet was provided. After the birth, the researchers returned to identify eligibility (see box 1) and to identify which part of the study (observation, questionnaires, interviews or all three parts) the woman would like to participate in.

Insert box 1

Women and health professionals provided written consent and understood that they were able to decline participation, without supplying a reason. Once recruited, two researchers (LB & EO) collected data.

Data collection

Observations took place in the room where perineal suturing occurred. The episodes involved the woman, clinician and researcher. At times the midwife or doctor conferred with another inside the room. The partner, support person or a student midwife may have been in the room at the same time. Everyone in the room was made aware when the tape recording began and was stopped. The recording was stopped after the woman was made comfortable following the procedure. Observation time ranged from 40 to 90 minutes and permitted body language, interpersonal communication, intonation, physical and emotional responses to be captured. To encourage the clinician to verbalise their decision making a qualitative prompt of, 'Carry on thinking aloud' was used.

Questionnaires and Interviews

To reduce the potential for re-call bias (Niven and Murphy-Black, 2000; Green and Thorogood, 2014) all questionnaires were given out on the same day as birth. Twenty five were collected within 24 hours of birth; one questionnaire was collected at 2, 3, 6 and 9 days after birth at the convenience of the women. We carried out semi-structured face to face interviews with women on the same day as birth (n=6), day 2 (n=10), day 3 (n=1), day 4 (n=1) and day 9 (n=1). Interviews with clinicians were carried out on the same shift as a suturing episode. Prompts such as, 'Can you describe your experiences of pain during suturing?' were used with women and 'Tell me about the experience of managing women's pain during suturing' with HPs.

Data analysis

Quantitative data were input into a statistical package (IBM SPSS Statistics 20) by LB & EO and analysis was completed by MC. Cut off scores of <10 (mild – moderate pain) and >11 (severe pain) were used for MCPQ-SF (Wilkie et al., 1990). Total HADS identified level of psychological distress (Herrmann, 1997; Crawford et al., 2001) and we explored qualitative associations of <7 (non-cases); 8-9 (borderline); 10-16 (potential) and 17> (severe) (Dickens et al., 2004). Cronbach's alpha was estimated for the MCPQ-SF and HADS subscales, and all four values were above the 0.70 criterion for acceptable internal consistency (see Table 1). Given the nature of the sampling and the sample size, most of the statistical analysis was descriptive; results of any inferential analyses (Kendall's correlation, Kruskal-Wallis test) should be interpreted with caution.

Insert Table 1.

Qualitative audios and transcripts were indexed via NVivo 9 computer software and initial analysis was conducted by LB. LMc verified and validated the findings and TL added a layer of consensus. Regular discussions with LMc assisted in the development of themes, elucidating areas of potential bias, minimising discrepancies and overstatements, and facilitated a deeper integration of the data (O'Cathain et al., 2010). All qualitative data were integrated via framework analysis (Srivastava and Thompson, 2009; Spencer et al., 2003; Ritchie and Spencer, 1994) which involved a five-step process. Synthesis was validated during face to face meetings where discussion facilitated an overall integration of the findings.

Findings

A total of 48 women were approached to take part, while 8 declined and 40 participated. Three hundred and sixty five women were excluded as failing one or more eligibility criteria. Women could participate in any part of the study. Of the 21 clinicians invited, 11 participated in observations and four (two doctors and two midwives) declined, the other 10 participated in face to face interviews (see flow chart).

Insert flow chart

Table 2 summarises characteristics of the participants according to whether or not they returned questionnaire data. Allowing for the small sample sizes, the percentage breakdowns in the two groups were similar for ethnicity, mode of birth and level of trauma, although there were slightly fewer primigravid and slightly more multigravid women in the group returning questionnaires. Overall, women returning questionnaires were reasonably similar to those not returning questionnaires.

Insert Table 2.

Among women returning questionnaires, the mean age was 28.7 years, 25 (86%) were White British, reflecting the hospital demographic, with almost equal numbers of primigravid (15) and multigravid (14). Twenty-seven (93%) had a normal vaginal birth, the other two requiring the use of a ventouse. The most common trauma was a 2nd degree tear (25, 86%), with three women having an episiotomy, and one a tear and an episiotomy.

Quantitative and qualitative data were integrated and synthesis represented three overarching themes. First, women who scored higher on HADS and MCPQ-SF expressed previous psychological distress and reported more concerns about their future functioning. Second, the amount of lignocaine administered varied widely. Thirdly, the style of communication used during the procedure appeared to increase the satisfaction of women undergoing suturing. The specific findings are outlined below:

Psychological distress and pain

HADS anxiety scores (mean 6.5, range 2 to 17) were noted to be higher than HADS depression scores (mean 2.9, range 0 to 8) (Table 3). Of the 26 women with HADS anxiety scores recorded, 14 (54%) had a score of 6 or more, 11 (42%) a score of 7 or more and 6 (23%) a score of 8 or more. Of the 28 women with HADS depression scores, 6 (21%) had a score of 6 or more, 5 (18%) a score of 7 or more and 2 (7%) a score of 8 or more. The mean score for the VAS (Visual Analogue Scale) on the MCPQ-SF was 2.97 (range 0.4, 7.2), while the means for the PRI (Pain Rating Intensity) sensory, affective and total scores were 8.2 (range 0 to 22), 1.9 (range 0 to 9) and 10.1 (range 0 to 31) respectively.

Insert Table 3.

The HADS anxiety score was not significantly correlated with any of the MCPQ-SF scores (Table 4); the HADS depression score was only significantly associated with the VAS (Kendall's $\tau=0.54$, $p<0.001$), as was the HADS total score (Kendall's $\tau=0.38$, $p=0.009$).

Insert Table 4.

Psychological distress and pain by degree of trauma

As shown in Table 5, there was insufficient evidence to show that HADS scores were higher for the three women with episiotomies compared with those with 2nd degree tears, but the MCPQ-SF VAS, and PRI sensory, affective and total scores did appear to be higher for three who had had episiotomies, particularly the sensory score (3 episiotomies: mean 14.7, median 13; 26 2nd degree tears: mean 7.4, median 8).

Insert Table 5.

Psychological distress and future functioning

Anxiety, depression and total psychological distress scores did not show a consistent pattern when broken down by variables. Conversely, the variable related to opiate use during labour (two doses, 1 dose, none) for the MCPQ-SF VAS and in particular PRI sensory and consequently, PRI total scores were higher in women who had been administered two doses (Table 6). The PRI sensory score showed a statistically significant difference between the three opiate groups (two doses: median 13.5; 1 dose: median 6; none: median 8; Kruskal-Wallis $\chi^2=7.59$, $df=2$, $p=0.022$), as did the PRI total score (two doses: median 16.5; 1 dose: median 8; none: median 10; Kruskal-Wallis $\chi^2=6.04$, $df=2$, $p=0.049$), primarily due to a marked difference between the two dose group and the other two groups.

Insert Table 6.

In the reporting of qualitative statements, clinicians are identified by the use of 'C', women by 'W' and researchers by 'R'. Observations (O) and interviews (INTS) are separately identified. Qualitative data highlighted that those women who scored 10

(n=2) or above 11 (n=8) on the MCPQ-SF (moderate –severe pain) or between 8-16 on HADS (potential case) appeared to have experienced psychological distress prior to suturing. For example, one woman in this group had counselling because of fear of labour and she explained:

I was counselled coz I had a fear of labour. I went to see [name] and he did put my mind at rest because initially I was going to get a c-section (WINT 2).

Other women in the same group spoke of needle phobia, previous third degree tears, being transferred in from a home birth for suturing and others commented that they were anxious before birth in general.

Women who scored higher were worried about the process of healing and the effects of future functioning or defecating even during the suturing process and one commented:

Just when will they start dissolving? Erm...like the aftercare – like you know making sure it's clean and making sure I don't tear my stitches, I'm a bit worried about that... so I think I'm probably still a bit anxious about that (29 year old primiparous) (WINT 10)

Only one woman had low scores on HADS (3) and the SF-MCPQ (9) and she did not comment about a previous emergency or psychological event and did not comment that she was worried about aftercare, healing or defecation.

Variation in the administration of analgesia

In this study Lignocaine 1% was used and the routine dose for midwives was an injection of 20ml. Observational and qualitative data captured how the majority of

clinicians made rule of thumb decisions about the quantity of lignocaine to be used. Doses differed each time a clinician spoke about this decision. Therefore, the amount of analgesia women received was left to the individual judgement of the clinician and is reflected in a variety of responses:

O 7: So I'll keep a bit of the local anaesthetic back just so I can pop a bit more in at the end, ok?

O 54: We can use up to twenty mls of lignocaine, which is what I've put, the whole lot in there for you ok?

(CLINT 9) Right, I could have given her some more local ... but that would have been two more ...stabs of the needle ...whereas putting one more stitch in ...is one stab of the needle ...so I've halved her pain ...without giving her any ... anything pharmacological (MW experience)

These decisions appeared to be focussed around the midwives perception of women's pain and not around judgements of pain made by women themselves. Women appeared to become responsible for requesting additional analgesia. When multiple requests for pain relief did not achieve a level of no pain women became resigned to the pain felt:

(WINT 39) when I thought it would probably be a few more stitches I just tolerated it! Because I just thought 'Poor man!', I'm just asking him after every stitch, I am asking...' – not every stitch literally! [laughs] But I am asking him to give me more, more, more (Lignocaine) so I just thought that I am probably whinging too much! [laughs] so maybe I should just tolerate it just a little bit! (34 year old multiparous).

(WINT 34) You know you're getting to the end then don't you. So you just grin and bear it. You don't have a lot of choice do you?! (33 year old multiparous).

Resignation and acceptance of pain during suturing was corroborated during clinical observation and HPs interviews:

O 26: W: *Oh... [high shrill]...sorry.*

C: *Don't panic just get it back together again.*

W: *[Now crying and using entonox]*

C: *You're Ok, you're Ok...it's tiredness it's exhaustion, everything's getting to you...just try and use the gas 'n' air without moving your bum though Ok. So if you could do that for the last stitch that would be great...excellent well done*

W: [Using entonox deeply]: **C:** *Big slow breaths is that Ok?*

W: *No but you want to do it so go on*

C: *But if you keep moving your bum I'm not going to be able to*

W: *Sorry I can't ...[crying]... I'm sorry. [Using entonox].*

However, it was evident that some women did not demonstrate pain and felt comfortable. For example, one woman felt so comfortable she began to text on her mobile 'phone during the process of suturing (O 56):

C: *She's aware that I'm using the needle but it's not painful to her. Also she's not wincing, she's not showing me outwardly any signs of pain.....right....[quiet laughter] She's fab.*

R: *A's carrying on texting! [Laughter]*

Style of communication

Observation and interviews were able to capture different styles of communication. Health professionals appeared to use short factual information or a more discursive partnership style to communicate. Short, factual information left little or no room for negotiation as O 27 portrays:

O 27: W: *[inhalation sound] Are these just dissolvable ones?*

C&C2: *Yeah*

C2: *I'll explain to you what I've done when I've done it. But yeah, these just dissolve.*

Style of communication was important for women and at times there appeared to be a deeper rapport during the clinical episode:

(WINT 2) The midwives and the obstetricians they were just brilliant. They really were good. The obstetrician who stitched me up just spoke to me throughout it. She was really encouraging. We had a little chat about some other things. Erm...and they were all just brilliant to be honest with you, just them and the baby being out really.... Just to have that midwifery support and the gas and air! [laughs] and that's it. As long as you have that I was fine during the actual stitching (28 year old primiparous).

The ability of the clinician to exhibit sensitivity and gentleness was important to women and created a feeling of being looked after:

(WINT 53) Everything was explained to me and I felt really well looked after and cared for and safe. The doctor was really sensitive... (33 year old primiparous).

Therefore, a deeper discursive partnership style of communication was able to make the difference about the procedure overall.

Discussion

The aim of this study was to explore factors that influenced pain during perineal suturing from the perspective of women and clinicians and this was achieved by using multiple methods of data collection. This is the first study to consider both perspectives concurrently. The findings will help to determine variables to be tested in a future larger study. However, the nature of this feasibility study means that exploration was limited and that the possible explanations for the study findings remain tentative. Three main themes were identified; 1. Psychological distress and future functioning; 2. Variation in practice and 3. Style of communication.

The use of HADS and MCPQ-SF to measure pain and psychological status was exploratory. Even so, we found women who experienced psychological distress during previous or current childbirth scored higher on HADS and MCPQ-SF, and appeared to express more concerns about future functioning and healing. Similarly, in a Norwegian population, Skari et al. (2002) suggested that maternal psychological distress was attributed to a previous traumatic birth. The finding that women felt

anxious about future functioning, healing or defecating was reflected by Way (2012) when women strived 'to be normal' (Way, 2012 p e712). Most recently, Bick (2014) identified that women who participated in the 'PEARLS' study (Ismail et al., 2013) felt the most important concern for them was around healing and future functioning. However, this study identified that concerns about future functioning are raised during suturing much sooner than previous studies.

Confirmation that variation in practice (Sanders et al., 2005; Kettle, 2005; Briscoe et al., 2007; Colacioppo and Gonzalez-Riesco, 2009) still exists was identified. This is despite the recognition that standards around perineal repair need to be improved nationally and internationally (Henderson and Bick, 2005; NICE, 2008; Kyei et al., 2012; Ismail et al., 2013). Variation in practice noted in this study appeared to be due to subjective, rule of thumb decisions made by clinicians. Rule of thumb, sometimes called 'experiential' decisions are based upon intuitive, fast thought processes where little conscious evaluation is required (Calder et al., 2012 p 811). This approach may miss judge level of pain by guess work (Riva et al., 2011), which generates a concern especially in relation to high rates of litigation around perineal trauma (National Health Service Litigation Authority) (NHSLA), 2012). Reliance on a 'best guess' approach and using a 'rule of thumb' in practice reflects a lack of local, national or international guidance available for clinicians' to refer to (NICE, 2008; Kyei et al., 2012). Literature that would inform us about whether lignocaine (used in routine practice in the UK) is effective leads to a small, older study (Phillipson et al., 1984), one small RCT (n=96) (Colacioppo and Gonzalez-Riesco, 2009) and a comparison between lidocaine-prilocaine cream (EMLA) and mepivacaine infiltration (Franchi et al., 2009). However, none explain about when analgesia should be given, where the

most effective places in the perineum are for infiltration, what time suturing should begin or whether women are satisfied with the pain relief provided.

In our study women demonstrated outward signs of pain during clinical observation, and interviews, and this suggests that pain was apparent for some women despite the administration of analgesia or inhalation. Some women circled moderate or severe pain and sensory pain increased if it was related to an episiotomy, a similar finding to Reading et al. (1982). We could speculate that increased pain with episiotomy may be due to dissatisfaction with pain relief for episiotomy, which is in alignment with MaClean et al. (2000) or to the degree of perineal laceration, which would be similar to that recorded in a larger cohorts (Eisenach et al., 2008; Francisco et al., 2011). Interestingly, a new finding was that PRI and sensory scores were higher in women who had two doses of opiates during labour. Doehring et al. (2013) suggested that there is a relationship between opioids administered to resolve chronic pain leading to aggravated pain later. Therefore, this concept will be explored in future research.

The manner in which health professionals acknowledged women's pain prompted women to respond with resignation and at times there appeared to be a determination to complete the suturing process despite pain expressed by women. In our study the woman appeared to be responsible for requesting additional analgesia. Salmon and Hall (2003) suggested the concept of shifting responsibility to the client during clinical episodes helps the clinician to distance themselves from aspects of care they are unable to treat. Therefore, one could speculate that the responsibility to become pain free was placed in the woman's control. In addition, Schmitz et al. (1996 p 41) identified that 'Accommodative Coping Theory' assists the individual to downgrade, reappraise and compare in order to stay in control. Similarly, Kohl et al.

(2006) described acceptance as a defence mechanism that has the ability to increase tolerance to pain. However, a deeper insight may be achieved by framing future questions around what were the expectations of the client and clinician about responsibility for pain management and how were those expectations contested and negotiated (Salmon and Hall, 2003).

Clinical observations and interviews highlighted that style of communication was able to make the overall difference to women regardless of previous experience or raised pain scores. There were two general styles of communication; short factual communication previously identified in other research (Stewart, 1995; Lavender et al., 1999; Hunter, 2004; McGowan et al., 2007) or a more discursive partnership style. Similarly, McCourt (2006) identified a professional style, where the clinician begins with questions, responds briskly and uses a friendly formality was interpreted differently to a partnership style, where listening and turn taking was provided in a conversational style. Women in this study responded positively when a partnership style of communication was described and perceived short factual conversation negatively. In this way, our study has confirmed that interpersonal skills of HPs surrounding perineal trauma remains important to women (Salmon, 1999).

Strengths and weaknesses

This study was unique as it is the first study to capture clinicians' decision making during perineal suturing for second degree tears and episiotomies in addition to capturing women's perceptions. It emerged that the 'Think Aloud' technique used during observations provided less in-depth understanding about decision making. Speculation could be that clinicians' experienced difficulty expressing their intuitive, rule of thumb decisions. Alternatively, clinicians may have perceived their client or

themselves to be vulnerable to explicit information. It may be that the topic of suturing an intimate part of a woman's body was too sensitive to discuss. This method deserves to be explored further in a future paper. It was important to capture more in depth information about how decisions were made about pain management during labour and therefore, following additional ethical approval, we included face to face interviews with clinicians who had sutured during that shift to capture a deeper perspective. It is possible that with deeper evaluation and adequate preparation, clinicians might support the use of 'Think Aloud' in future research.

This feasibility study purposefully excluded variables that may have affected the results. Future research should review and broaden the inclusion criteria. However, unexpected variables have been identified which will be explored further in a larger study. For example, higher pain scores around episiotomy and for those who had two doses of opiates.

Dual consent from HPs and women was required and this process was anticipated to create a barrier to recruitment. However, the process was accommodated by the majority of clinicians and women, and permitted the collection of rich data from a novel perspective.

Recommendations for practice and research

Women who experienced previous psychological events scored higher pain and were interested to know more about their future functioning. Therefore, there is a need to place the woman's context of perineal suturing into the whole process of suturing even at the booking appointment. Future research should explore from a longitudinal perspective how listening to women at booking influences concerns related to future functioning. Alongside of that approach there needs to be evidence based information

for women to support education about what happens during suturing, how tissues heal best, what to expect following suturing and how to identify when a health professional needs to be contacted.

This study confirmed that variation in practice has continued to exist over time, specifically around pain management during suturing. However, current evidence lacks focussed guidance about dose, strength, location of application and timing of analgesia. Furthermore, there is no information to identify what level of analgesia women are satisfied with. Future research should examine multiple aspects of pain management more closely to develop a decision tree to assist decision making in practice.

The style of communication used by the HP made the overarching difference for women, even though pain was apparent. It is important for individuals and organisations to explore if women are satisfied with communication during perineal suturing. It is important to consider how communication styles become an accepted part of the clinical culture and organizations should question what makes a person adopt a particular style of communication in practice. Further qualitative analysis in a future study is needed to identify the most effective methods to support health professionals to develop or modify their ability to communicate effectively in relation to perineal trauma.

The findings from this study have highlighted complexity surrounding the process of suturing women's perineum. It is important to understand that the process of perineal suturing is not a standalone event for a woman. Therefore, it is crucial that health professionals consider previous and subsequent experience of perineal suturing in order to understand the woman's journey from booking through to the completion of every individual birth.

Key messages

- Women who scored higher on measures of self-reported pain and psychological distress had experienced a previous psychologically distressing event and were concerned about future functioning.
- Variation in practice occurred around how health professionals managed women's pain
- The style of communication had the ability to increase women's satisfaction about perineal suturing

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Box 1 (Page 5): Exclusion Criteria

- Emergency or elective caesarean
- Any pre-existing medical disorder
- Fetal anomaly
- Regional or spinal epidural analgesia
- Pudendal nerve block in situation
- Under 18 years old
- Non English speaking
- Below 37 weeks gestation.

Tables

Table 1. (Page 7) Cronbach alpha scores

| Measures | Cronbach alpha |
|-----------------------------|----------------|
| HADS anxiety (n=27) | 0.810 |
| HADS depression (n=29) | 0.709 |
| MCPQ-SF sensory (n=28) | 0.840 |
| MCPQ-SF affective (n=29) | 0.703 |

Table 2. (Page 8) Characteristics of women by whether woman returned questionnaire data (n=40)

| Characteristic | | Returned questionnaire data | | |
|----------------|-----------------------------|-----------------------------|---------------|-----------------|
| | | Yes (n=29) | No (n=11) | Total (n=40) |
| Age | Mean (SD) | 28.7 (5.1) | 28.8 (5.6) | 28.7 (5.2) |
| | Median (range) | 29 (20 to 42) | 28 (19 to 37) | 29 (19 to 42) |
| Ethnicity | White British | 25 (86%) | 9 (82%) | 34 (85%) |
| | Other | 4 (14%) | 2 (18%) | 6 (15%) |
| Parity | Primigravid | 15 (52%) | 7 (64%) | 22 (55%) |
| | Multigravid | 14 (48%) | 4 (36%) | 18 (45%) |
| Mode of birth | Vaginal | 27 (93%) | 10 (91%) | 37 (93%) |
| | Ventouse | 2 (7%) | 1 (9%) | 3 (8%) |
| Trauma | 2 nd degree tear | 25 (86%) | 10 (91%) | 35 (88%) |
| | Episiotomy | 3 (10%) | 1 (9%) | 4 (10%) |
| | Tear & episiotomy | 1 (3%) | 0 (0%) | 1 (2%) |

Table 3. (Page 9) HADS and S-F McGill Pain Questionnaire scores (n=29)

| Measure | | N | Mean (SD) | Median (range) | Skewness (SE) |
|---------------|------------|----|-------------|-------------------|------------------|
| HADS | Anxiety | 26 | 6.5 (3.7) | 6 (2 to 17) | 1.19 (0.46) |
| | Depression | 28 | 2.9 (2.7) | 2 (0 to 8) | 0.71 (0.44) |
| | Total | 26 | 9.6 (5.7) | 9 (2 to 24) | 0.91 (0.46) |
| SF- McGill | VAS | 29 | 2.97 (1.92) | 2.4 (0.4 to 7.2) | 0.82 (0.43) |
| | Sensory | 27 | 8.2 (5.6) | 8 (0 to 22) | 0.93 (0.45) |
| | Affective | 27 | 1.9 (2.2) | 1 (0 to 9) | 1.62 (0.45) |
| | Total | 27 | 10.1 (6.8) | 10 (0 to 31) | 1.15 (0.45) |

HADS = Hospital Anxiety and Depression Scale; SF-McGill = Short-Form McGill Pain Questionnaire

Table 4. (Page 10) Kendall correlations between HADS and S-F McGill Pain Questionnaire scores (n=29)¹

| Measure | HADS | | | SF-McGill | | | |
|------------------|-----------|------------|-----------|-----------|-----------|-----------|-------|
| | Anxiety | Depression | Total | VAS | Sensory | Affective | Total |
| HADS | | | | | | | |
| Anxiety | | | | | | | |
| Depression | 0.47 | | | | | | |
| | (p=0.002) | | | | | | |
| Total | | | | | | | |
| SF-McGill | | | | | | | |
| VAS | 0.17 | 0.54 | 0.38 | | | | |
| | (p=0.237) | (p<0.001) | (p=0.009) | | | | |
| Sensory | 0.14 | 0.23 | 0.24 | 0.39 | | | |
| | (p=0.354) | (p=0.114) | (p=0.108) | (p=0.006) | | | |
| Affective | -0.12 | -0.01 | -0.08 | 0.14 | 0.32 | | |
| | (p=0.440) | (p=0.965) | (p=0.620) | (p=0.347) | (p=0.037) | | |
| Total | 0.05 | 0.19 | 0.15 | 0.38 | | | |
| | (p=0.758) | (p=0.186) | (p=0.310) | (p=0.008) | | | |

HADS = Hospital Anxiety and Depression Scale; SF-McGill = Short-Form McGill Pain Questionnaire

¹ Number of observations varied between 25 and 29; other correlations were not of interest

Table 5. (Page 10) HADS and S-F McGill Pain Questionnaire scores by degree of trauma (n=28)¹

| Measure | Degree of trauma | | | |
|------------------|---------------------------------------|------------------|---------------------|------------------|
| | 2 nd degree tear (n=25) | | Episiotomy (n=3) | |
| | Mean (SD) | Median (range) | Mean (SD) | Median (range) |
| HADS | | | | |
| Anxiety | 6.6 (4.0) | 6 (2 to 17) | 5.7 (0.6) | 6 (5 to 6) |
| Depression | 2.7 (2.6) | 2 (0 to 8) | 4.0 (3.6) | 5 (0 to 7) |
| Total | 9.6 (6.0) | 9 (2 to 24) | 9.7 (3.2) | 11 (6 to 12) |
| SF-McGill | | | | |
| VAS | 2.87 (1.90) | 2.4 (0.4 to 7.2) | 4.13 (2.30) | 4.0 (1.9 to 6.5) |
| Sensory | 7.4 (5.0) | 7.5 (0 to 22) | 14.7 (6.7) | 13 (9 to 22) |
| Affective | 1.6 (1.7) | 1 (0 to 6) | 4.3 (4.2) | 3 (1 to 9) |
| Total | 9.0 (5.5) | 9 (0 to 23) | 19.0 (10.8) | 16 (10 to 31) |

HADS = Hospital Anxiety and Depression Scale; SF-McGill = Short-Form McGill Pain Questionnaire

¹ For one other woman who had a tear and an episiotomy, only one outcome was recorded, VAS=1.8

Table 6. (Page 10) HADS and S-F McGill Pain Questionnaire scores by opiates during labour

| Measure | Two doses (n=4) | | Opiates 1 dose (n=8) | | None (n=17) ¹ | |
|------------------|--------------------|-------------------|----------------------------|-------------------|-----------------------------|------------------|
| | Mean (SD) | Median (range) | Mean (SD) | Median (range) | Mean (SD) | Median (range) |
| HADS | | | | | | |
| Anxiety | 7.0 (3.2) | 7.5 (3 to 10) | 6.1 (3.3) | 6 (2 to 13) | 6.6 (4.3) | 5 (2 to 17) |
| Depression | 2.5 (1.7) | 3 (0 to 4) | 2.1 (1.7) | 2 (0 to 5) | 3.3 (3.2) | 2 (0 to 8) |
| Total | 9.5 (4.1) | 9 (6 to 14) | 8.3 (4.6) | 8.5 (2 to 17) | 10.4 (6.8) | 9.5 (3 to 24) |
| SF-McGill | | | | | | |
| VAS | 3.78 (1.81) | 3.65 (1.9 to 5.9) | 2.10 (1.94) | 1.75 (0.4 to 6.5) | 3.18 (1.90) | 2.4 (0.7 to 7.2) |
| Sensory | 14.8 (5.1) | 13.5 (10 to 22) | 7.0 (6.7) | 5 (0 to 22) | 7.1 (3.8) | 8 (0 to 13) |
| Affective | 2.0 (1.2) | 2 (1 to 3) | 2.4 (2.7) | 1.5 (1 to 9) | 1.7 (2.2) | 1 (0 to 6) |
| Total | 16.8 (4.9) | 16.5 (11 to 23) | 9.4 (9.3) | 7 (1 to 31) | 8.7 (4.8) | 10 (0 to 17) |

HADS = Hospital Anxiety and Depression Scale; SF-McGill = Short-Form McGill Pain Questionnaire

¹ Number of observations varied between 14 and 17