This is the preprint version of the following article: Brown, A., & Jordan, S. (2014). Active Management of the Third Stage of Labor May Reduce Breastfeeding Duration Due to Pain and Physical Complications. *Breastfeeding Medicine*, *9*(10), 494-502.. It has been published in final form at http://online.liebertpub.com/doi/abs/10.1089/bfm.2014.0048

Active management of the third stage of labour may reduce breastfeeding duration due to pain and physical complications

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AB was supported by a postdoctoral fellowship from the ESRC.

The authors have no financial relationships relevant to this article to disclose.

The authors declare no conflicts of interest with respect to the authorship and/or publication of this article

Amy Brown: Dr. Brown conceptualized and designed the study, coordinated data collection, carried out the analyses, drafted the initial manuscript, and approved the final manuscript as submitted.

Sue Jordan: Dr. Jordan conceptualized and designed the study, carried out the analyses, drafted the initial manuscript, and approved the final manuscript as submitted.

Key words: breastfeeding; third stage; childbirth; medications; uterotonics; active management; pain

Abstract

Background: Evidence is growing that active management of the third stage of labour using prophylactic uterotonics may be associated with lower breastfeeding rates. The reasons underlying this relationship are incompletely understood. The aim of this paper is to examine the experiences of mothers who stopped breastfeeding in relation to administration of parenteral uterotonics for *post partum* haemorrhage prophylaxis.

Methods: 288 mothers with an infant aged 0 – 6 months who had a vaginal birth completed a self report questionnaire examining injections of uterotonics during the third stage of labour, breastfeeding at birth, breastfeeding duration and, where applicable, reasons for breastfeeding cessation, whether physical, social, or psychological.

Results: No significant association was found between infant feeding mode at birth (breast/formula) and injection of uterotonics. However, mothers who had received uterotonics were significantly less likely to be breastfeeding at all at two and six weeks. Amongst mothers who had stopped breastfeeding, those who had received parenteral prophylactic uterotonics were significantly more likely to report stopping breastfeeding for physical reasons such as pain or difficulty.

Discussion: These findings suggest that injection of prophylactic uteronics may reduce breastfeeding duration, but not initiation. This may be attributable to the effects of oxytocin or ergometrine on the physiology of lactation, leading to difficulties with infant latch and milk supply. If breastfeeding rates are to be optimized, this hypothesis needs to be explored in randomised controlled trials of third stage management. Meanwhile, mothers who receive parenteral uterotonics may need additional support to establish breastfeeding.

Introduction

The benefits of breastfeeding for both infant and maternal health are well known (1 - 3); accordingly, the World Health Organisation recommends that infants are exclusively breastfed for the first six months postpartum (4). However breastfeeding rates in the UK are low. Although the latest figures show that 73.6% of mothers in England initiate breastfeeding at birth (5), by six weeks only 47.2% are breastfeeding at all. Understanding this early cessation of breastfeeding is important not only for infant and maternal health (2, 3) but also because 80% of mothers who discontinue breastfeeding during the first six weeks postpartum do not want to (6). Examining the factors associated with early cessation will facilitate development of interventions to promote sustained breastfeeding.

Reasons for breastfeeding cessation have been extensively explored (7). Decisions to initiate and continue breastfeeding are complex and affected by many social and psychological variables including support from family and peers (8), perceived impact of breastfeeding on lifestyle (9) and poor confidence, knowledge and self efficacy (10). Pain and physical difficulty encouraging the infant to feed are also commonly cited reasons for cessation (11) alongside perceived milk insufficiency (12).

Evidence is accumulating that birth experience can affect breastfeeding (13 - 16). Mothers who have an uncomplicated unassisted vaginal birth where they have immediate skin to skin contact with their infant and initiate breastfeeding as soon as possible are most likely to continue breastfeeding (17, 18). However, complications such as emergency Caesarean section (13 – 15), elective Caesarean sections (19, 20), assisted birth using forceps or ventouse (21), a prolonged second stage of labour (22) and foetal distress during labour (13) are all associated with a shorter breastfeeding duration. It is likely that delayed breast fullness (23), delayed recovery from childbirth (24) and separation of mother and infant (25) contribute to breastfeeding failure.

Attention is also turning to the drugs women receive during childbirth and how they might impact upon establishment of breastfeeding. Epidural anaesthesia is associated with a reduction in breastfeeding rates (26, 27), delayed onset of breastfeeding (23) and a

perception of poorer milk supply (28). Opioids, such as pethidine, meptazinol or fentanyl reduce infants' ability to latch and suckle (15, 29) leading to reduced chances of breastfeeding (24, 30). Recent work suggests an association between complications during childbirth and reduced breastfeeding duration. Mothers who experience post partum haemorrhage, caesarean delivery or foetal distress breastfeed for a shorter duration and are more likely than those experiencing uncomplicated childbirth to report pain on feeding plus difficulty with the infant's latch . Medications associated with these problems may explain this link (16).

Management of the third stage of labour may influence breastfeeding success. Active management of third stage always includes injection of a uterotonic as prophyalxis against *post paratum* haemorrhage, whereas physiological management involves no medication and allows the placenta to be delivered spontaneously (31). The Cochrane review of management of third stage concluded that, for women at low risk, active management may not reduce the risk of severe haemorrhage (>1L) or low haemoglobin concentration (<9g/dL) at 24-72 hours *post partum* (31). Serious blood loss may be due to damage to non-uterine tissues refractory to uterotonics (3810). Some observation studies suggest that, for low risk women, severe haemorrhage (>1 litre), blood transfusion and surgery for PPH may be more likely when third stage is actively managed (32, 33). When all women are considered, active management reduces the mean *post partum* blood loss by 79 ml.(28), and the WHO (2006) recommend women receive active management particularly in developing countries where up to 25% of maternal deaths are due to haemorrhage (34). In the UK, women usually receive an intramuscular injection of either oxytocin or syntometrine® (oxytocin plus ergometrine) during the third stage (35, 36), but practice varies (37, 38).

One potential adverse effect of a medicated third stage is the impact on breastfeeding. Analysis of a large birth records dataset (n=48,366) indicated that intramuscular injection of oxytocin, with or without ergometrine, in the third stage of labour reduced breastfeeding rates at 48 hours by 6-8% (aOR 0.75, 95% CI 0.61-0.91, aOR 0.77, 95%CI 0.65-0.91), consistent with other cohort studies (20). A randomised controlled trial (n = 132) of active management of the third stage of labour with intravenous ergometrine indicated a

statistically significant increase in the number of women supplementing and ceasing breastfeeding by one and four weeks post-partum, mainly because lactation was inadequate for the infants' needs (39).

However, understanding of the mechanisms underlying this reduction in breastfeeding is incomplete. It is possible that disruption of neuro-endocrine/ paracrine pathways may lead to suboptimal latching, nipple trauma, pain and feeding difficulty. The aims of this paper are to 1) examine associations between breastfeeding duration and intramuscular uterotonics and 2) explore physiological, social and psychological reasons for breastfeeding cessation in relation to third stage management.

Methods

Ethics statement

All aspects of this study have been performed in accordance with the 1964 Declaration of Helsinki. Swansea University Department of Psychology Research Ethics Committee granted approval for this study. All participants gave informed consent *via* tick box after reading the information sheet for the study. For online participants, if consent was not given, the remainder of the questionnaire would not upload.

Participants

Three hundred and ninety mothers with an infant aged up to 6 months and who had given birth vaginally were recruited through local mother and baby groups based in the City and County of Swansea, UK and by advertisement on UK online parenting forums between July 2011 and January 2012. Groups were located in areas with varying degrees of social deprivation as measured by the Welsh Index of Multiple Deprivation (2008) (40). For participation *via* established online forums, study adverts were placed on online message boards (e.g. www.mumsnet.com; www.bounty.com). We excluded dyads affected by: caesarean delivery, multiple birth, low birth weight (<2500g) or premature birth (< 37 weeks).

Measures

The self report questionnaire consisted of questions examining maternal demographic background (age, education, parity and occupation (coded using NSEC, 2005) (39), infant details (age, gender, birth weight), use of pain relief, method of delivery, and details regarding breastfeeding initiation, duration and exclusivity.

Within the questions examining birth mode, participants were given a description of active versus physiological management of the third stage of labour. They were asked to indicate whether they experienced active management and received an injection soon after the birth or physiological management (no injection) or whether they were unsure.

Participants indicated whether they breast or formula fed at birth and, if they had stopped, duration of breastfeeding (full or partial). Mothers who had stopped breastfeeding completely also completed a forty one item questionnaire examining the reasons why they stopped (Table 1). Questions were based on qualitative interviews conducted with mothers exploring reasons for not breastfeeding or stopping breastfeeding before six months (8, 41) and themes in the literature for breastfeeding cessation (7, 11). Items were initially piloted (n = 20) before first being used in our previous work (16). Responses were based on five point likert scales (strongly agree, agree, neither agree nor disagree, disagree, strongly disagree).

To examine non-normally distributed data, such as breastfeeding duration, natural logarithmic transformations were computed to correct for the skewed distribution. Back transformation was then used to compute logical mean scores.

Data collection

The questionnaire was completed either via a paper copy distributed through local mother and baby groups or via an online survey link whereby data was collected through an online questionnaire hosted by survey monkey. Participants from the face-to-face groups were also given an online link to complete the questionnaire if required and likewise online

participants could request a paper copy from the researcher. Both the paper and online version of the questionnaire contained and information and consent section and debrief information. Details of how to contact the researcher for further information were included. For the face-to-face groups permission was initially sought from the group leader. The group leader / manager distributed the questionnaire to mothers who returned it to the group in a sealed envelope. For the online version of the questionnaire permission was sought from the host of various online parenting groups (e.g. www.mumsnet.com; www.bounty.com). Details of the questionnaire were then posted online with a link to the online version of the questionnaire.

Data analysis

For the items examining reasons for breastfeeding cessation, principal components analysis using varimax rotation was carried out using IBM SPSS v20, IBM SPSS UK Ltd. Factors with Eigenvalues over 1 were retained. A threshold of 0.5 was used to determine which variables should be retained (42). The computed factor scores were saved as regression scores and used for the data analysis as recommended by Tabachnik and Fidell (43). Participants were therefore scored along a continuum from -1 to +1 for each factor. Higher factor scores represented stronger agreement with the specified reasons for stopping breastfeeding. Cronbach's alpha was computed for each factor to examine internal consistency.

Associations between breastfeeding at birth, two and six weeks were explored in unadjusted (chi square with Yates' correction for 2x2 tables) and adjusted analyses. Multivariate ANCOVA (MANCOVA) were used to explore differences in breastfeeding duration and reasons for stopping breastfeeding according to third stage management (active versus physiological). The adjusted analysis controlled for factors associated with breastfeeding in unadjusted analyses: maternal age and education, birth mode and analgesia administered.

Results

The questionnaire was completed by 310 mothers (256 online, 54 paper copy). Twenty-two mothers were excluded from the analyses for not knowing whether they had active or

physiological management. This left 288 mothers in the sample. Two hundred and thirty eight participants had active management (82.6%), fifty participants physiological management (17.4%).

The mean age of the remaining 288 respondents at childbirth was 29.2 (SD: 5.35, range 18-42) years, and the mean number of years in education was 13.2 (SD: 2.05, range 12-20); 53.6% of mothers were primiparous. Demographics are further described in Table 2. Age of infant at time of response ranged from one week to twenty six weeks (mean age 15.76 weeks (SD: 7.11)). No significant difference was seen in mean age, years in education or breastfeeding duration between mothers who completed a paper or online version of the questionnaire.

Infant feeding

Participants indicated how they fed their infant at birth and at 2 and 6 weeks. 236 (81.9%) breastfed at birth whilst 52 (18.1%) formula fed. Mothers who breastfed at birth were significantly older ($t(322) = 4.04$, $p < 0.001$, mean difference 3.20 years 95% CI: 1.64 – 4.76) and more educated ($t(322) = 6.58$, $p<0.001$, mean difference 2.80 years 95% CI: 1.95 – 3.63) than those who gave formula. Therefore maternal age and education were controlled for throughout analyses. No significant association was found between occupation or marital status and infant feeding at birth.

Birth Experience

Birth mode (vaginal unassisted versus vaginal assisted) and pain relief during childbirth (epidural or intramuscular pethidine meptazinol) were examined. Two hundred and nine mothers had an unassisted vaginal delivery (72.6%) with 79 having an assisted delivery with forceps or ventouse (27.4%). Seventy one mothers used pethidine/meptid during labour (24.7%) whilst 44 from the active management group had an epidural (15.3%).. The remaining mothers reported no pharmacological analgesia other than nitrous oxide in oxygen.

A significant association was found between pethidine and formula use at birth (χ^2 (1, 2 88) = 20.31, p < .001; OR: 0.24; CI:0.13 - 0.44), two weeks (χ^2 (1, 2 63) = 4.92, p = .019; OR: 0.53; CI:0.30 - 0.93) and six weeks (χ^2 (1, 2 28) = 6.048, p = .013; OR: 0.51; CI:0.29 - 0.88)

No significant association was seen between an assisted delivery and formula use at birth, but mothers who had an assisted delivery were significantly less likely to be breastfeeding at two (χ^2 (1, 263) = 7.38, p=0.01; OR: 2.23, CI: 1.28 – 3.90) and six (χ^2 (1, 228) = 10.75, p <0 .001; OR: 3.22, CI: 1.56 – 6.62) weeks.

The association between third stage management and birth experience was also explored. A significant association was seen between assisted birth and active management (χ^2 (1, 288) = 4.70, p = .03; OR: 0.38, CI:0 .16 –0.87), although no significant association was seen with use of pethidine and assisted delivery (χ^2 (1, 288) = 0.57, p = 0.28 OR: 1.27; CI: 0.68 – 2.36).

Assisted birth and pethidine use were therefore controlled for where appropriate throughout analyses.

Infant feeding and uterotonic injection in third stage of labour

When association between infant feeding mode and third stage management was examined, no significant association was seen between third stage management and infant feeding mode (breast/formula) at birth. Any breastfeeding (full or partial) at two and six weeks was then examined. For two weeks, the sample was reduced to those with an infant aged two weeks or older (n = 263) and for six weeks, for an infant aged six weeks or older (n = 228). Significant associations were found between feeding mode and third stage management. At both two and six weeks mothers who had received active management were significantly less likely to be breastfeeding compared to those who had a physiological third stage (Table 3).

Reasons for stopping breastfeeding and third stage management

Mothers who had ceased breastfeeding at the time of the questionnaire reported reasons for stopping breastfeeding. Of the 113 mothers who had ceased breastfeeding, 95 had received active management (84.1%) and 18 physiological management (15.9%).

Thirty six of the forty one items loaded onto eight factors. The rotated component matrix explained 50.30% of the variance (Table 1). Internal validity for each factor was good, with Cronbach's alpha ranging from 0.62 to 0.79. Factors included were: body image concerns (worries about appearance and leaking milk), embarrassment (not wanting to feed in front of others or in public), difficulty (problems with latch and positioning), pain (from cracked nipples or mastitis), impact upon lifestyle (lack of routine and difficulties socialising), pressure from others to stop (from friends, family and partner), lack of support (difficulties getting advice or support with problems) and medical reasons (taking medication or advised to stop by a professional).

Scores on each of the eight factors for stopping breastfeeding were compared for third stage management groups controlling for birth mode, pain relief and maternal age and education. A MANCOVA analysis found that mothers who had an active third stage were significantly more likely to agree they stopped breastfeeding for reasons of pain ($F(1, 99) = 7.12$, $p = .01$), difficulty ($F(1, 99) = 10.17$, $p = 0.002$) and embarrassment ($F(1, 99) = 9.39$, $p = 0.003$) compared to mothers who had physiological management. No difference appeared between the two groups for reasons of medical need, lack of support from others, pressure from others to stop, perceived inconvenience, embarrassment or body image.

Discussion

This study reports the association between intramuscular uterotonics in the third stage of labour, breastfeeding initiation and duration and reasons for breastfeeding cessation amongst a group of mothers of infants aged up to 6 months who had a vaginal birth. Mothers who received an injection of a uterotonic (oxytocin or oxytocin combined with ergometrine) during the third stage were less likely to be currently breastfeeding and reported a shorter breastfeeding duration. They were significantly more likely to stop

breastfeeding due to pain and difficulty than those who received physiological management.

Third stage management did not interfere with infant feeding at birth. This is a logical finding. Mothers form strong intentions to breast or formula feed before or during pregnancy, and breastfeeding intention predicts breastfeeding initiation (6, 30). There is no reason why parenteral uterotonics should prevent an initial first breastfeed, as this is usually dictated by the woman's choice. This is often considered successful, even if the mother's attempts to latch the infant onto the breast are not wholly effective. Even if a mother has received medication which might interfere with ability to breastfeed it would be unlikely to affect her willingness or ability to place her infant to the breast at birth unless childbirth had been unusually complicated (16, 17). All mothers in this sample had normal births (Caesarean deliveries, infants needing NICU (neonatal intensive care units), premature births were excluded) and any influence of assisted delivery on the relationship between third stage management and breastfeeding was controlled in the analysis.

Shortened breastfeeding duration due to pain or other physical difficulties was associated with injection of uterotonics during the third stage of labour. By as early as two weeks postpartum women were significantly less likely to be breastfeeding if they had received intramuscular uterotonics. This finding might be interpreted in terms of the physiology of lactation. Successful breastfeeding requires increased secretion of prolactin and oxytocin at birth. Like all dopamine agonists, ergometrine inhibits prolactin secretion regardless of route of administration (45), and intravenous ergometrine interferes with the ability to continue breastfeeding (39). Administration of intramuscular oxytocin in the third stage of labour reduces endogenous prolactin secretion in response to suckling at 2 days *post partum* (45), and interrupts oxytocin feedback mechanisms (46), disrupting the hormonal balance needed for optimum mother-infant bonding (20, 45, 46, 47). Higher doses of oxytocin are associated with impaired infant breastfeeding behaviours, suggesting a dose-

response relationship (48). Also, the reduction of plasma cortisol following intramuscular oxytocin may impair the catabolism needed for milk production (49).

The proposition that oxytocin, with or without ergometrine, disrupts the finely-balanced physiology of lactation is supported by the novel findings reported here. Amongst women who had stopped breastfeeding, those who had received active management were significantly more likely to do so for reasons of pain and difficulty compared to those who had physiological management, although no differences occurred between the two groups for issues such as social support, negative attitudes or maternal health difficulties. Specifically, mothers who received active management were experiencing greater difficulty with infant latch and perceived milk insufficiency, indicating physiological issues and biological causes. Oxytocin secretion during birth and lactation depends on remodelling and an abrupt switch in activity of the oxytocin secreting cells of the magnocellular nuclei of the hypothalamus (50, 51). The effects of interventions and medicines at delivery on this complex regulation of oxytocin within the CNS have been shown to persist for at least 2 weeks *post partum* (52): our participants reported persisting with breastfeeding for days, hoping that problems would subside, before being overwhelmed by physical difficulties. Therefore, infants whose mothers have received oxytocin may have greater difficulty latching onto the breast or the mother-infant dyad may fail to feed responsively and build up milk supply. Poor latching is associated with pain on breastfeeding and correct positioning and latch are critical for increasing milk supply and intake (53). If infant feeding behaviour is disturbed, poor latching and weak suckling will neither empty the breast nor stimulate adequate release of prolactin and oxytocin (45), reducing milk production. This may lead to delayed lactogenesis and/or reports of inadequate milk supply and feeding dificulties. Others have shown that low breastfeeding frequency at day 2 is associated with low milk volume at day 5 (23).

Poor suckling and latching are associated with infant weight loss, and, consequently, the belief that milk supply is poor or the infant needs more than breast milk (15), resulting in shorter breastfeeding duration (54 - 56). Each of these reasons are commonly cited in relation to breastfeeding discontinuation (57).

Mothers who had received intramuscular uterotonics were also more likely to report stopping breastfeeding because they felt embarrassed at feeding in front of others or in public. Although this may not appear to be linked to a biological reaction to medication received, it is likely that mothers who have difficulty getting their infant to latch find feeding in public or in front of other people more problematic. In turn, greater embarrassment is linked to shorter breastfeeding duration (7).

Currently, a high proportion of mothers receive active management of the third stage to reduce the risk of excessive blood loss (35). However, practice varies, and women under the care of midwives are more likely to receive physiological management (36, 37). Since systematic review suggests that for low risk women in developed countries, active management does not affect the incidence of severe haemorrhage or low haemoglobin *concentration postpartum* (32), the impact of intramuscular uterotonics on breastfeeding duration merits consideration. These findings indicate that women who receive active management require greater support in relation to latch, pain and building milk supply in the early days postpartum to articulate and overcome these difficulties.

The uncertainty generated by this and previous work (20) will not be resolved without a large, multisite randomised controlled trial for third stage management. This analysis controlled for birth experience (mode and pain relief) and maternal demographic background which may affect infant feeding. However, as in all observational studies, we cannot exclude residual confounding: it is possible that women who choose a physiological third stage are in some way different to those who choose active management. Research linking breastfeeding with management of the third stage may not be routinely discussed with women antenatally, and women who do not express a preference may be advised to receive active management (36). In many UK centres, active management is often the automatic choice. Mothers who decide to have a physiological third stage may have read widely on birth and breastfeeding before making this decision and, consequently, are better informed on breastfeeding and overcoming difficulties. Alternatively, mothers who choose

to go against the norm, and sometimes professional advice, regarding third stage management may have greater confidence and self efficacy, which in turn affects breastfeeding duration and ability to overcome difficulties (8, 10). Psychological traits, such as anxiety, may affect breastfeeding success (58); whether this association is secondary to increased willingness to accept pharmacological interventions requires investigation. However, this aside, the data showed no differences in stopping breastfeeding for psycho-social issues between the two groups; differences would be expected here if women were significantly different in terms of psychological traits or determination to breastfeed.

This internet survey has some limitations. Firstly the sample was self selecting with an unknown response rate which might have led to only the most motivated women participating (59). However, breastfeeding initiation and continuation rates of the sample are largely similar to those found in the UK Infant Feeding Survey (6). Although participants came from a wide range of demographic backgrounds, the sample favoured older, more educated women (60), as elsewhere in health services' research (61 - 64). This may have been due to use of internet forums for recruitment. However, this method is becoming increasingly popular for accessing women from all demographic backgrounds and across widespread geographical areas, due to the popularity of such forums amongst young women (65). Generalisability of the findings must be based on logical, rather than statistical, inferences.

Data are based on self report and retrospective recall of birth mode, infant feeding at birth and for some, duration of breastfeeding. It is possible that mothers misreported whether they had an active of physiological third stage but they were given the option of 'not sure', and subsequent exclusion from the analysis. However it is unlikely that mothers would forget third stage management decisions, especially as, at least for physiological management, it is often an active choice written into birth plans (66). Data regarding aspects such as epidural use, assisted delivery or how the infant was fed at birth are unlikely to be forgotten, especially in a sample for whom birth was relatively recent.

In conclusion, this paper augments the growing body of evidence that active management of the third stage of labour using prophylactic uterotonics may decrease breastfeeding rates at 2 and 6 weeks. These data support the argument that active management may interfere with the physiology of lactation, increasing risk of difficulties with latch and milk supply. However, until an adequately powered multisite RCT has been conducted, residual confounding cannot be discounted. The health benefits of breastfeeding indicate that this investment in maternal and child health is warranted.

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Table One: Items and factor structure of questionnaire examining reasons for stopping breastfeeding:

	Body image	Embarrassed	Difficulty	Pain	Lifestyle	Pressure	Support	Medical
Breastfeeding was ruining my breasts	**.65**	.12	.08	.12	.20	.11	.11	.14
I wasn't losing weight	**.73**	.17	.18	.20	.18	-.14	.15	-.01
My breasts kept leaking	**.62**	.22	.12	.11	.12	.05	.22	.05
I wanted my body back for me	**.62**	.32	.11	.19	-.08	.01	-.06	-.22
I didn't like feeding in public	.16	**.84**	.20	.18	.10	-.07	-.04	.05
I didn't like feeding in front of others	.19	**.85**	.29	.16	.01	.05	.03	.06
I was stuck in the house breast feeding	.22	**.72**	.03	.15	.15	.06	.04	.11
I didn't know anyone else who breast fed	.04	**.56**	.32	.22	.11	.22	.29	.12
The baby wouldn't latch on properly	.22	.27	**.71**	.20	.11	.27	.22	-.11
The baby was feeding all the time	.21	.25	**.75**	.21	.06	.15	-.05	.15
My baby wasn't gaining enough weight	-.09	.07	**.69**	.22	.02	.22	.29	-.11
I didn't have enough milk	-.02	.01	**.62**	.09	.14	.19	.11	-.02
Baby didn't want to breastfeed anymore	-.04	.12	**.67**	.23	.26	.29	.16	.01
It was too painful	.04	.19	.11	**.78**	.27	.22	.09	.11
My nipples were cracked	.01	.08	.21	**.62**	.19	.34	.22	.03
I got mastitis, thrush or another similar problem	.03	.04	.26	**.68**	.04	.33	.12	.01
It was too difficult	-.02	.15	.20	**.77**	.21	.15	.24	.03
I never knew when the baby was going to feed	.11	.04	.10	.22	**.72**	.23	.05	.14
I didn't like being responsible for all the feeds	.03	.24	.19	.14	**.67**	.26	.15	.22
I couldn't keep track of milk intake	.30	.23	.12	.13	**.70**	.20	.13	.21
I couldn't leave the baby	.02	-.05	.14	-.04	**.61**	-.11	-.03	-.05
I couldn't go out and socialise	.12	.16	.24	.06	**.68**	.18	.21	.06
I wanted a more predictable routine	-.02	.04	.14	.12	**.70**	.18	.19	.13
My partner wanted me to stop	.15	.35	.10	.22	.10	**.79**	.41	.03
My mother wanted me to stop	.09	.32	.17	.31	.19	**.82**	.34	.12
Friends wanted me to stop	.13	.26	.12	.16	-.04	**.76**	.39	.05
Other people made negative comments	-.24	.17	.02	.15	-.11	**.75**	.25	.07
Other people felt excluded	.14	.20	.26	.10	.03	**.62**	.35	.03
I couldn't get any help with problems	.17	.12	.12	-.15	.23	.12	**.80**	.11
I didn't have enough support	.34	.33	.12	.08	.21	.12	**.76**	.18
I couldn't get any professional advice	.28	.12	.24	.23	.21	.19	**.60**	.32
I was exhausted	.30	.18	.42	.23	.05	-.13	**.58**	.22
I wasn't well	.38	.32	.36	.05	.12	.12	.12	**.54**
The baby wasn't well	.22	.28	.25	.17	.04	.10	.08	**.68**
I was taking medication	.15	.39	.14	.21	.09	-.09	.22	**.66**
A health professional advised me to stop	.12	.18	.11	.12	.22	.02	.14	**.78**
Percentage of variance explained	**15.28**	**10.66**	**4.79**	**4.74**	**4.16**	**4.02**	**3.42**	**3.20**
Cronbach's alpha	**.79**	**.76**	**.70**	**.69**	**.63**	**.78**	**.72**	**.62**

Table one shows regression scores for each item and how they load onto each factor produced. Items in bold signify items which group strongly on each factor

Table two. Sample distribution by Demographic Factors and birth mode n=288

Indicator	Group	Active third stage		Physiological third stage	
		N	%	N	%
Age	≤ 19	8	3.4	0	0
	20 – 24	35	14.7	10	20.0
	25 – 29	66	27.7	13	26.0
	30 – 34	89	37.4	18	36.0
	35 ≥	40	16.8	9	18.0
	Total	**238**	**100**	**50**	**100**
Education	School	63	26.4	12	24.0
	College	46	19.3	11	22.0
	Higher	81	34.0	11	22.0
	Postgraduate	48	20.0	16	32.0
	Total	**238**	**100**	**50**	**100**
Marital Status	Married	155	65.1	32	72.0
	Cohabiting	69	29.0	12	24.0
	Partner	10	4.2	2	4.0
	Single	4	1.7	0	0.0
	Total	**238**	**100**	**50**	**100**
Maternal occupation	Professional & managerial	83	34.8	20	40.0
	Skilled	44	18.5	9	18.0
	Unskilled	28	11.7	6	12.0
	Stay at Home Mother	83	34.8	15	10.4
	Total	**238**	**100**	**50**	**100**
Birth Mode	Unassisted	166	69.7	43	86.0
	Assisted	72	30.3	7	14.0
	Total	**238**	**100**	20	100
Analgesia	Pethidine	63	26.5	8	16.0
	No pethidine	175	73.5	42	84.0
	Total	**238**	**100**	**50**	**100**

Table Three. Mode of feeding and third stage management (unadjusted analysis)

Time	Feeding	Active management n (%)	Physiological management n (%)	Chi square, significance,	Odds ratio	95% Confidence interval
Birth (n = 288)	Breast (236)	192 (81.4)	44 (18.6)	(χ^2 (1, 288) = 1.50, p = 0.15)	0.57	0.23 – 1.42
	Formula (52)	46 (88.5)	6 (11.5)			
Two weeks (n = 263)	Breast (131)	100 (76.3)	31 (23.7)	(χ^2 (1, 263) = 8.04, p = 0.005)	0.35	0.18- 0.71
	Formula (132)	119 (90.2)	13 (9.8)			
Six weeks (n=228)	Breast (79)	59 (74.7)	20 (25.3)	(χ^2 (1, 228) = 6.36, p = 0.01)	0.38	0.19 - 0.78
	Formula (143)	132 (88.6)	17 (11.4)			