

# Maternal report of feeding practices: a cross-sectional survey of 1753 mothers presenting infants to a chiropractic teaching clinic

By Ann Kristin S. Homdrum, BSc, MSc<sup>1</sup> and Joyce Miller, BSc, DC, PhD<sup>2</sup>

1. Private practice, Norway

2. Associate Professor, Anglo-European College of Chiropractic; Lead Tutor, Musculoskeletal Health in Pediatrics, Bournemouth University, United Kingdom

Corresponding author: Joyce E. Miller, , DC, PhD. Email: jmiller@aecc.ac.uk

## ABSTRACT

**Objectives:** The objectives of this survey were to investigate maternal choices to initiate or preserve exclusive breastfeeding and to map out the main domains of problems with feeding in infants in a population of mothers who presented their infant for chiropractic care. **Methods:** A cross-sectional survey of parents who presented their infants to a chiropractic teaching clinic. Each form was coded with a number and data entered into an Excel spreadsheet. Two main software packages were used to analyze data; Microsoft Excel 2000 spreadsheet/SPSS-17 and GraphPad Instat Statistical analysis software. **Results:** In all, 1753 surveys were collected. Most mothers (88%) initiated breastfeeding. The mean age when mothers stopped breastfeeding was 3 weeks (SD=5.5). Among women who stopped breastfeeding (n=502), 197(39%) had routine vaginal births and 305 (61%) had assisted births. There was no statistically significant correlation between type of birth and feeding. There was a significant correlation (0.048) between when the mothers stopped breastfeeding and the lack of satisfaction with the breastfeeding experience. Of those mothers who stopped breastfeeding, mothers who planned to breastfeed while pregnant, breastfed for twice as long compared to the women who did not plan to breastfeed ( $p = .005$ ). **Conclusion:** This population was representative of the UK population in that breastfeeding initiation rate was high and there was also significant early discontinuation. Further study is required to determine which factors might work toward helping new mothers continue in order to support public health initiatives to improve the health of mother and infant.

## Introduction and Background

For most infants, breastfeeding remains the simplest, healthiest and least expensive feeding method that fulfills the infant's nutritional needs.<sup>1</sup> Breastfeeding and suckling problems affect a significant number of newborns. When an infant cannot feed effectively due to an inability to suck or latch effectively, the benefits of breast milk and breastfeeding may be lost forever.

The practice of breastfeeding is advantageous for mother and baby in so many ways, but the choice to do so is dependent on a multitude of factors.<sup>2</sup> Lactation problems such as delayed onset of lactation and suboptimal breastfeeding behavior in infants are common, even among mothers who are highly motivated to breastfeed.<sup>2</sup> If the mother feels that she is unsuccessful in feeding her child, she may choose formula which has high risks for the short and long-term health of the child.<sup>1</sup>

UK feeding surveys have shown that initiation rates are high, but that mothers stop early.<sup>3</sup> The reason for failure of continuation of breastfeeding are complex and require individualized assessment and intervention.<sup>4</sup> According to a comprehensive breastfeeding assessment done by Hall et.al. in 2002, all infants should be assessed by a health care professional within 2-3 days of hospital discharge; however, this practice is not rigorously followed and possible consequences might be an increased incidence of readmission of

breastfeeding infants for dehydration and jaundice as well as the cessation of breastfeeding.<sup>4</sup>

Lactation consultants, nurses and midwives routinely work with mother/infant dyads to optimize latch (attachment), positioning and other factors that affect the ability of the infant to feed successfully. Unfortunately, even with these factors optimized, a significant number of infants cannot feed and mothers either search for other options to help, such as chiropractors,<sup>5</sup> or give up breastfeeding after weeks or even days due to the pain during the feeding process.

The health and well-being of children is a natural concern for all parents and societies. As a health conscious generation, we want the best for our children; yet with hectic lifestyles, the choice to breastfeed may be lacking despite the enormous number of benefits breastfeeding has for both mother and child. The benefits of breast milk is well documented in the literature and the World health Organization (2012) recommends exclusive breastfeeding for the first six months of life, with the gradual introduction of complementary foods and continuation of breastfeeding until two years or beyond.<sup>1</sup> Also, as early life is the critical time for primary prevention of obesity and other associated diseases<sup>3</sup> it is imperative to investigate postnatal feeding choices.<sup>3</sup>

The aim of this survey was to improve our understanding of feeding practices in mother/infant dyads that present to

a chiropractic clinic, including type of feeding and issues that surround changes in feeding practices, along with a wide range of feeding parameters.

**Methods**

In order to understand maternal-infant feeding practice, a cross-sectional survey was taken of mothers presenting their infants to a university-affiliated chiropractic clinic on the south coast of England. Inclusion criteria were all mothers who could read and write English who presented an infant to the clinic for care. Exclusion criteria were mothers who presented a child over 12 months of age or were not fluent in English. This study was approved by an independent ethics committee and consent was taken if the mother agreed to complete the form. All mothers signed a form stating they were willing to take part in a research study and all data were held anonymously.

The collected data were coded and entered into Excel spreadsheet. Microsoft Excel 2000 spreadsheet/SPSS-17 and GraphPad Instat Statistical analysis software were used. SPSS-17 was used for data storage and these data were exported and analyzed using Instat.

**Results**

There were 1753 surveys collected and analyzed in this study. The demographic data for all the subjects are summarized in Table 1. Not all subjects answered every question. The total number (n) who answered each question is given in the results tables.

The mean age at presentation was 8.7 weeks (SD= 12.4 weeks). The most common age (mode) at presentation was four weeks. Ages ranged from two days to 12 months.

The mean gestational age was 39.2 weeks (SD= 3.1). The av-

erage birth weight was 3.45 kg (SD=1.1kg).

The two most common complaints at presentation were crying (38%) and feeding (17%), or other (38%). More than half of births were assisted (54%) and 46% were routine vaginal births. Most (64%) were first babies in the family and 36% were 2nd-5th child.

Overall, 88% of mothers initiated breastfeeding just after the birth. Of 1485 babies who responded to this question in the survey, 51% were breastfed, 33% formula fed and 16% both. If stopped breastfeeding, the mean age was 3 weeks (SD=5.5) (Table 2).

There was a significant correlation (0.048) between when the mothers stopped breastfeeding and the lack of satisfaction with the breastfeeding experience. Of those mothers who stopped breastfeeding, mothers who planned to breastfeed while pregnant, breastfed for twice as long compared to the women who did not plan to breastfeed (p=.005). Amongst women who stopped breastfeeding (n=502), 61% had assisted births.

A wide range of datum was collected regarding general feeding practices. We wish to report this as there was an intention to collect a broad range of data and report multiple parameters of infant feeding choices from mothers presenting to this type of clinic. As far as we know, this is the first attempt at such sampling. However, the response rate for many questions was low and therefore, this sample may not be widely representational of the broader population. Hence, these data are reported in an appendix for those who might be interested or planning further research in that area (Tables 3, 4, 5 - next page). These are included for the sake of completeness but are not analyzed further in this report.

**Table 1. Demographic data of the infants presented to a chiropractic clinic**

Demographic Data	Number (n) Responses	Missing	Mean	Standard Deviation (SD)
Age	n=1750	3	8.7 weeks	12.6 weeks
Birth weight	n=1664	89	3.45 kg	1.1 kg
Gestational age	n=97	97	39.2 weeks	3.2 weeks

**Table 2. Maternal report of feeding length of time**

Parameters	Number (n) Responses	Mean	Standard Deviation (SD)
How long have you BF so far	n = 1587	5.4 weeks	6.5 weeks
To what age do you plan to BF	n = 227	7.5 months	3.4 months
If stopped BF, at what age of baby	n = 504	3 weeks	5.5 weeks

*BF = breastfed, breastfeed or breastfeeding*

**Table 3: Feeding variables reported by mothers attending a chiropractic clinic**

Variables	Number (n)	Yes n(%)	No n(%)
Problems with feeding	n = 1740	623 (35.8)	1117 (64.2)
Did baby latch within 1st hour	n = 317	194 (61.2)	124 (38.8)
Does baby latch well now	n = 278	158 (56.8)	119 (42.8)
Is feeding a pleasure	n = 547	397 (72.6)	150 (27.4)
Does baby bite the nipple	n = 301	153 (50.8)	148 (49.2)
Does baby gag while feeding	n = 323	137 (42.4)	185 (57.3)
Is baby irritable while feeding	n = 335	215 (64.2)	120 (35.8)
Does baby regurgitate during/after feeding	n = 565	387 (68.5)	177 (31.3)
Is there ever projectile vomiting	n = 232	81 (34.9)	151 (65.1)
Is baby in discomfort while feeding	n = 327	154 (47.1)	173 (52.9)
Does baby dribble milk while feeding	n = 336	222 (66.1)	114 (33.9)
Does baby make noises while feeding	n = 338	247 (73.1)	91 (26.9)

**Table 4: Maternal report of feeding parameters of their infant**

Parameters	Number (n)	Frequency	Percentage	
In what position do you feed your baby	n = 283	cradle position	n = 97	34.3
		front/upright	n = 39	13.8
		rugby ball	n = 52	18.4
		lying down w/mother	n = 12	4.2
		all positions	n = 83	29.3
Average feeding time	n = 326	< 10 minutes	n = 62	19
		20 minutes	n = 89	27.3
		20-45 minutes	n = 97	29.8
		> 45 minutes	n = 19	5.8
		variable	n = 59	18.1
If formula changed, how many times	n = 69	1	n = 42	60.9
		2	n = 16	23.2
		3	n = 9	13
		4	n = 2	2.9
How is the baby fed	n = 1494	breast fed	n = 8	9.5
		formula	n = 495	33.1
		both breast and formula	n = 235	15.7
What would stop you from breastfeeding	n = 84	work	n = 8	9.5
		pain	n = 38	45.2
		not enough milk	n = 19	22.6
		other	n = 19	22.6

**Table 5. Maternal report of specific feeding issues with their infant**

	Number (n)	Yes (n%)	No (n%)
Does the baby need to be woken to feed	n = 337	84 (24.9)	253 (75.1)
Did you plan to BF while pregnant	n = 587	541 (92.2)	46 (7.8)
If formula, has the formula changed	n = 189	71 (37.6)	118 (62.4)
Did baby have tongue tie	n = 344	104 (30.2)	240 (69.8)
Do you use nipple guards	n = 263	39 (14.8)	224 (85.2)
Does baby use a dummy	n = 192	103 (53.6)	89 (46.4)
Feed equally from both sides	n = 225	154 (68.4)	71 (31.6)
Does feeding hurt you	n = 238	111 (46.6)	127 (53.4)
Do you give baby water	n = 333	89 (26.7)	244 (73.3)

BF = breastfed, breastfeed or breastfeeding

## Discussion

This study sought to collect and report multiple parameters of infant feeding practices in an outpatient chiropractic clinic with a large intake of infant patients. The most common age at presentation was four weeks of age and just over half were breastfed. This compared favorably to UK statistics where there is a profound drop in breastfeeding by six weeks of age to 23%.<sup>3</sup> This is likely because of two factors; this is a conservative practice where many mothers present with feeding problems (24%) in the endeavor to seek improvement. Mothers who attend this clinic often seek chiropractic care as a “last resort” and come for help prior to cessation of breastfeeding. We may have seen the tip of the iceberg...many mothers may still be breastfeeding, but on their last gasp. More than a third (36%) admitted to feeding problems even though that wasn't their prime reason for attendance at the clinic. The most striking finding among those who did not breastfeed was the early stoppage of breastfeeding, on average at three weeks of age in this population.

Our cessation findings were corroborated in the research literature in that the largest decrease in breastfeeding rates occurs during the first four postpartum weeks and reasons for early breastfeeding discontinuation are complicated.<sup>6</sup> Mothers who discontinue breastfeeding early are more likely to report a lack of confidence in their ability to breastfeed, problems with the infants suckling or latching, perception of insufficient milk supply, breast soreness or pain or a lack of individualized encouragement from their clinicians in the early post discharge period.<sup>6</sup> In our study, those who stopped recorded general dissatisfaction with the feeding experience or pain.

However, most of the women did plan to breastfeed for six months or more, while they were pregnant. Their pre-delivery intentions about breastfeeding were strong predictors of both initiating this behavior and continuing it through the vulnerable post-delivery period. As a matter of fact, this study shows that they were likely to breastfeed for twice as long if they planned to breastfeed while being pregnant. This same phenomenon was found in previous research.<sup>6</sup> Ahluwalia, Marrow and Hsia in 2005 concluded that adequate interventions during pregnancy and soon after delivery will assist women in making the optimal infant-feeding choices for themselves and their infants.<sup>7</sup> Another study by Labarere et.al. in 2005, provided preliminary evidence of the efficiency of breastfeeding support through early, routine, preventive visits to the office of trained primary care physicians.<sup>8</sup> This points to the fact that chiropractors who help babies breastfeed through their mechanical treatment may keep the dyad feeding when they may otherwise have failed.<sup>5</sup>

In this study, 24% of the presenting complaints were feeding problems. Yet when asked directly if they had problems with feeding, nearly 36 percent more of the sample answered yes. This may suggest that even if a mother presents to a clinic with a completely different complaint than feeding difficulties, such a problem may still co-exist. She may feel that the problems are common and she cannot complain about it. For this reason alone, one can see the importance of identifying factors that may influence early feeding experience. Clinicians need to ask the correct questions about feeding in order to find out how common this problem really is and from there, encourage breastfeeding.

Almost half of the women who responded claimed that pain would possibly stop them from breastfeeding. This leads to a concern regarding maternal pain that might be associated with breastfeeding in an infant with suboptimal feeding technique for biomechanical reasons.<sup>5</sup> It is recognized that in the early stages of breastfeeding, even normal infants may cause their mothers to experience some nipple pain.<sup>6</sup> However, if the infant is struggling to breastfeed due to a dysfunctional suck, this needs to be addressed early.<sup>5</sup> According to Maxwell and Fraval in 1998, this type of maternal nipple pain resulting from an infant's dysfunctional sucking can be severe.<sup>9</sup> Further, they describe how this can lead to exquisitely tender, cracked and/or bleeding nipples of the breast-feeding mother and that it can alter the milk composition or secretion.<sup>9</sup>

Over half of the respondents who stopped breastfeeding also had assisted births. There was, however, no statistically significant correlation between type of birth and feeding. We wondered whether the weak correlations could be because of the skewed sample of healthy, mostly full term neonates, and, in this clinic, many of whom are routinely referred early by other health care professionals.<sup>10</sup> Thus, there was little variation in the sample. Despite these findings, it is appropriate to apply the concept that birth practices affect breastfeeding, because the establishment of a satisfactory suckling pattern, may not be achieved as easily for an infant who has a mechanical deficit from a birth trauma.<sup>11</sup>

The possibility that intrapartum analgesia affects breastfeeding has been investigated before. However, the literature contains contradictory reports of the impact of neuroaxial opioids on lactation and neonatal behavior. While inhalation analgesia is rapidly eliminated from mother and neonate, other analgesics cross the placenta and enter colostrum.<sup>12</sup> Therefore, intrapartum analgesics may exert effects on both mother and infant affecting early cessation.

In this population, the mothers who stopped breastfeeding did so early on average around 3 weeks, despite all the

evidence regarding the significant health advantages to the mother and growing child. This suggests that an unsatisfying feeding experience, if not ameliorated, may lead to difficulties initiating and sustaining breastfeeding. It is therefore important to identify factors that influence early feeding experiences for the newborn and the mother. It is unlikely that these were uneducated mothers who didn't know the advantages of breastfeeding, but still they could not sustain it. It is hugely important that we understand why and manage these problems.

### Conclusion

Breastfeeding has a major role to play in public health. Prevalence of assisted births compared to natural births,

along with a lack of satisfaction with the feeding experience were associated with cessation in this sample and thus it is representational of the general population where the same has been found.<sup>3</sup> Of particular influence was the important role that breastfeeding intentions played in determining women's actual decisions. Amongst the women who stopped, they breastfed for twice as long if they had planned to do so during pregnancy. However, they fell far short of public health guidelines.

Further study is required to determine which factors, including chiropractic care, might support new mothers to continue to breastfeed.

### References:

1. World Health Organization, 2012. Health topics: Breastfeeding (online). Available from: <http://www.who.int/topics/breastfeeding/en/> [Accessed 18.10.2012].
2. Dewey KG, Nommsen-Rivers LA, Heining M., Cohen RJ, 2003. Risk factors for suboptimal infant breastfeeding behavior, delayed onset of lactation and excess neonatal weight loss. *Pediatrics*, 112: 607.
3. McAndrew F, Thompson J, Fellows L, Large A, Speed M, Renfrew MJ. Infant feeding survey 2010. *Leeds: Health and Social Care Information Centre*. 2012. <http://www.hscic.gov.uk/catalogue/PUB08694/Infant-Feeding-Survey-2010-Consolidated-Report.pdf>. Accessed 19 April 2015.
4. Hall RT et.al, 2002. A breast-feeding assessment score to evaluate the risk for cessation of breast-feeding by 7-10 days of age. *The Journal of Pediatrics*, 141, (5): 659-663.
5. Tow J, Vallone SA. Development of an integrative relationship in the care of the breastfeeding newborn: lactation consultant and chiropractor. *Journal of Clinical Chiropractic Pediatrics*. 2009; 10(1): 626-632.
6. Ruowei L, Fein SB, Chen J, Grummer-Strawn LM. 2008. Why mothers stop breastfeeding: mother's self-reported reasons for stopping during the first year. *Pediatrics*, 122: 69-76.
7. Ahluwalia IB, Morrow B, Hsia J. 2005. Why do women stop breastfeeding? Findings from the pregnancy risk assessment and monitoring system. *Pediatrics* 116 (6): 1408-1412.
8. Labarere J, Gelbert-Baudino N, Ayrat AS, Duc C, Berchotteau M, Bouchon N, Schelstraete C, Vittoz JP, Francois P, Pons JC. 2005. Efficacy of breastfeeding support provided by trained clinicians during an early, routine, preventive visit: A prospective, randomized, open trial of 226 mother-infant pairs. *Pediatrics*, 115 (2): e139-e146.
9. Maxwell MPR, Fraval DO, 1998. A pilot study: osteopathic treatment of infants with a sucking dysfunction. *Journal of American Osteopathic Association*, 12: 25-33.
10. Miller J. Demographic survey of pediatric patients presenting to a chiropractic teaching clinic. *Chiropractic and Osteopathy* 2010; 18:33.
11. Smith LJ. Impact of birthing practices on the breastfeeding dyad. *J Midwifery Womens Health*. 2007;52(6):621-630.
12. Jordan S, Emercy S, Bradshaw C, Watkins A, Friswell W. 2005. The impact of intrapartum analgesia on infant feeding. *International Journal of Obstetrics and Gynaecology* 112: 927-934.