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Author

Cooke, M, Cantrill, R, Creedy, D

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Research

The first breastfeed: A content analysis of midwifery textbooks

Marie Cooke RN MSPD PhD

Ruth Cantrill RM IBCLC BN M Mid(Hons)

Debra Creedy RN BA(Hons) PhD



Abstract

This paper reviews content related to the first breastfeed in textbooks commonly used in midwifery education programs in Australia. Few scholars have critically examined the adequacy of such information for evidence-based midwifery practice. Five midwifery textbooks were chosen for content analysis specifically related to: skin-to-skin contact for newborn adaptation; orientation and coordination; suckling for effective breastfeeding; instructions to facilitate breastfeeding initiation; breast structure and function; and breastfeeding promotion. A score was calculated with the maximum possible total of 105. The content analysis scores ranged from 35 to 54, with two texts (Lowdermilk, Perry & Bobak 2000; Sweet 1997) scoring 54. Skin-to-skin contact to facilitate breastfeeding initiation is not well promoted in popular midwifery textbooks. Further research to promote midwives access to evidence-based research for effective midwifery practice in relation to breastfeeding initiation is required.

Keywords: content analysis, midwifery practice, initiation, breastfeeding, skin-to-skin, evidence-based practice

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INTRODUCTION

Health professionals who are adequately educated about lactation provide helpful information to women about infant feeding choices and appropriate interventions (Humenick, Hill & Spiegelberg 1998). Despite midwives' close association with breastfeeding women, there is limited understanding of their knowledge of research evidence related to breastfeeding initiation. Furthermore, some women report conflicting advice and misinformation given by midwives as a barrier to sustained breastfeeding (Hailes & Wellard 2000; Scott et al 2001). This suggests that not all midwives possess contemporary knowledge of human lactation and infant feeding. When the needs of newborn babies are understood and their innate abilities utilised at the first breastfeed, other problematic aspects of breastfeeding may be minimised and breastfeeding initiation rates and maternal satisfaction will improve (Henderson, Stamp & Pincombe 2001; Humenick, Hill & Spiegelberg 1998; Righard 1996).

Midwives play an important role in promoting breastfeeding initiation. Palmer and Kemp (1996) assert that midwives are not given adequate instruction to support breastfeeding women. Midwifery textbooks provide basic information, and are commonly accessed by midwives to learn about breastfeeding. However, content on lactation management and infant feeding in commonly prescribed midwifery and medical textbooks has come under recent scrutiny. Several authors claim that textbook content is often outdated, inaccurate and not sufficiently science-based to reflect advances in the growing body of knowledge in this area of health (BFHI 2000; Gupta & Kumar 1999; Palmer & Kemp 1996).

Cantrill, Creedy and Cooke (2003) recently surveyed Australian midwives (n=1005) and found that 77.5% (n=856) accessed books and journals to learn about breastfeeding but only 4.9% (n=54) found books and journals to be a valuable source of information. Almost half (42.3%; n=467) reported their midwifery education program did not prepare them for their role in helping women breastfeed. Over two-thirds (73.4%; n=811) reported not being prepared to promote breastfeeding or support breastfeeding mothers.

Allen (2000) suggests that midwifery education influences practice. Similarly, breastfeeding education can make a difference to midwifery practice by informing and supporting women to promote and protect breastfeeding (Jancken et al 1999; Martens 2002). Research in various countries has also shown that when continuing education programs and in-service education are made mandatory for hospital staff the incidence of positive breastfeeding outcomes improves (WHO CHD 1998).

In contrast, it is known that inadequate breastfeeding knowledge by health professionals is a barrier to optimal breastfeeding management (Humenick, Hill & Spiegelberg 1998). Several studies have addressed the knowledge and attitudes of health professionals in regard to breastfeeding management (Freed et al 1995; Humenick, Hill & Spiegelberg 1998; Register et al 2000). Freed et al (1995) found a lack of appropriate lactation content in medical education and recommended increased evidence-based research in medical textbooks.

The evidence regarding skin-to-skin contact for mothers and babies is compelling. Physiological adaptation to extrauterine life for the newborn kept in continuous skin-to-skin contact includes a stabilising effect on temperature, pulse and respiration (Christensson et al 1992). Also, blood glucose levels remain stable since infants cry less and are less stressed than babies separated from their mothers (Christensson et al 1995). The positive physiological and emotional effects for mothers include increased

oxytocin levels to move milk along the breast ducts (Nissen et al 1995; Uvnas-Moberg & Eriksson 1996), heightening of maternal instinct to increase acceptance of the child, the opportunity for the mother to hold and feel ownership of her baby as well as reassurance of baby's well-being (de Chateau & Wiberg 1977; Klaus, Jeraul & Kreger 1972; Widstrom et al 1990). Several researchers have also observed that skin-to-skin contact affects the infant's orientation to feeding source and coordinates suckling ability (Righard & Alade 1990; Widstrom et al 1987). Newborn babies can recognise their mother's odour and use their sense of smell to find their way to the breast (Varendi, Porter & Winberg 1994). Babies' abilities to find the breast and suckle vary between those kept in continuous skin-to-skin contact and those separated soon after birth (Righard & Alade 1990; Widstrom et al 1987). In particular, Righard and Alade (1990) identified that those babies separated from their mothers within 19 minutes for weighing and other procedures refused to suckle or demonstrated superficial nipple sucking when returned to their mothers.

Newborn babies are equipped with innate reflexes which enable them to find the breast, attach correctly and feed effectively, provided they are given the opportunity to remain in skin-to-skin contact with their mother for a sufficient length of time (Righard & Alade 1990; Widstrom et al 1987). Righard and Alade (1990) found that most babies began sequential feeding behaviour within an average of 19 minutes. This consisted of leg and arm movements in an attempt to find the breast and then licking, rooting, open mouth with head turned to side, and hand-to-mouth coordination. Righard (1996) argued that the application of this knowledge concerning newborn innate feeding behaviour and suckling reflexes is important to prevent common breastfeeding attachment problems which can lead to sore nipples, engorgement and mastitis.

In Australia, midwives are the most likely health professional to be with women at the time of breastfeeding initiation. While some midwives are keen observers of newborn behaviour and assist women by facilitating the innate abilities of the baby, other midwives follow institutional policies and procedures that may interfere with breastfeeding initiation (Righard & Alade 1994). Woolridge (1986) identified through ultrasound observation that peristaltic tongue action was involved in milking the breast. This knowledge is important in terms of the advice midwives give women about positioning the baby close to the breast, observing their baby's rooting reflex and waiting for the mouth to gape wide open before expecting the baby to attach correctly and suckle effectively (Glover 1991; Righard & Alade 1992; Woolridge 1986).

Gupta and Kumar (1999) examined content on practical aspects of breastfeeding and lactation management in six paediatric and obstetric medical textbooks (editions ranged from 1995-1998). A grid was created to tabulate four evaluation criteria of adequate, inadequate, missing and incorrect information for specific information in each text. Conclusions about the adequacy of content on practical aspects of breastfeeding and lactation management were drawn from a collation of the evaluation criteria.

The present study is innovative in three important ways. Firstly, this study builds on Gupta and Kumar's (1999) evaluation criteria, and attaches a numerical score to criteria. 'Adequacy' of information is assessed according to degree of evidence-based research incorporated. Secondly, the study also assumed that as midwives are closely involved in the practical aspects of supporting breastfeeding initiation, midwifery textbooks would include information specific to breastfeeding initiation. No previous analysis to ascertain the adequacy of information on the first breastfeed in midwifery texts was found in the literature.

Finally, this study examines the extent to which the specific research for optimal breastfeeding initiation is included in midwifery textbook content. It is well known that if a newborn baby is kept in continuous skin-to-skin contact with the mother after birth, predictable, sequential stages of adaptation (Christensson et al 1992), orientation (Varendi, Porter & Winberg 1994) and coordination (Righard & Alade 1990; Widstrom et al 1987) facilitate the baby's ability to effectively breastfeed (Woolridge 1986). Using available research evidence related to the initiation of breastfeeding (Enkin et al 1995; ILCA 1999; WHO CHD 1998) as a content framework, this analysis aims to inform evidence-based midwifery practice; identify possible contributing factors to the conflicting advice received by mothers about breastfeeding; increase awareness of the need for prescribed texts to provide correct and contemporary information to inform practice; and provide recommendations for further research.

METHOD

Five midwifery textbooks published between 1997 and 2000, commonly prescribed as reference books for midwifery education in Australia were chosen for content analysis (Beischer, Mackay & Coldits 1997; Bennett & Brown 1999; Lowdermilk, Perry & Bobak 2000; Stables 1999; Sweet 1997). Texts were identified by accessing university web sites to identify relevant programs, and then emailing program coordinators to determine the prescribed texts. The five texts chosen were the most frequently prescribed by the nine universities offering midwifery programs in Australia. The review was confined to content related to: (1) skin-to-skin contact immediately after birth for initiating newborn feeding behaviours; (2) newborn innate suckling reflexes to correctly attach to the breast; (3) instruction on how to facilitate initiation of the first breastfeed; (4) anatomy/physiology of breast function; and (5) benefits of breastfeeding. Since breastfeeding is a visually learned art, relevant photographs and illustrations were also examined. Key references to evidence-based research for breastfeeding initiation prior to 1997 were identified by examining three well-known evidence-based resources (Enkin et al 1995; ILCA 1999; WHO CHD 1998) and by searching the Medline and CINAHL databases for the period 1970 to 1996.

To assess the adequacy of knowledge included in the texts and compare content among textbooks, a breastfeeding initiation score was developed using a five-point rating scale. This score included 21 items under the five major categories of information described above. The adequacy of information, including photographs and illustrations, related to each criterion was weighted on a scale of 1, specific information not mentioned; 2, information included but was inaccurate or outdated; 3, some information included but insufficient scope; 4, specific information included with reference to evidence-based research; and 5, correct and specific information integrated with overall midwifery care concepts. The scale produced a possible maximum score of 105.

To identify content, indices were searched for keywords such as feeding, breastfeeding, adaptation, skin-to-skin and birth, then book chapters and sections relating to birthing, infant feeding and nutrition, infant adaptation and infant assessment were examined. As a means to crosscheck, a table was constructed tabulating the 21 items and identified references, assigned rating, evidence-based research used in the text and comments. It is beyond the scope of this paper to discuss every available reference for each item.

RESULTS

Skin-to-skin contact

The adequacy of the evidence-based information on the benefits of skin-to-skin contact in all texts using the rating scale is shown in Table 1. Whilst the importance of initiating breastfeeding during the first hour after birth was mentioned in all texts, only two texts specifically mentioned skin-to-skin contact in relation to breastfeeding initiation (Bennett & Brown 1999; Sweet 1997). One of those gave extensive reference to research evidence (Sweet 1997). Only one textbook showed a picture of a naked baby at the breast immediately after birth (Beischer, Mackay & Coldits 1997, p 529). Depictions of a baby at the breast generally showed the baby well-wrapped. Although assessment and physiological adaptation of the newborn were well covered in all texts; none referred to skin-to-skin contact as a means of physiological adaptation. While all

Table 1: Benefits of skin-to-skin contact

	Beischer, Mackay & Coldits 1997	Bennett & Brown 1999	Lowdermilk, Perry & Bobak 2000	Sweet 1997	Stables 1999
Physiological adaptation					
Temperature	3	3	3	3	3
Respiration	1	1	1	1	1
Heart rate	1	1	1	1	1
Blood glucose estimate	1	1	1	1	1
Assist in orientation of baby to mother	1	3	4	4	3
Helps baby initiate feeding behaviour	1	1	3	3	3
Triggers innate reflexes for feeding	1	3	3	3	3
Infant can smell liquor on hands and match with secretions from nipple and areolar	1	1	1	1	3
Facilitates mother and infant bonding					
Maternal acceptance of baby	1	1	4	3	3
Oxytocin levels	3	3	3	3	3
Time factor for keeping baby in continuous skin-to-skin contact is crucial	1	1	1	3	1
Separation after 20 minutes can be detrimental to baby feeding well	1	1	1	1	1
First 2-4 hours can be crucial for some babies eg analgesia or other drugs given during birthing process, head trauma, exhaustion	1	3	1	3	1
TOTAL	17	23	27	30	27

Table 2: Newborn suckling reflexes and feeding behaviours

	Beisher, Mackay & Coldits 1997	Bennett & Brown 1999	Lowdermilk, Perry & Bobak 2000	Sweet 1997	Stables 1999
Sequence of behavioural events by infant in initiating feeding activity	1	1	3	1	1
Crawling, licking, rooting gape	4	1	3	3	3
Can reduce feeding problems	1	3	3	3	1
Can improve success and duration of breastfeeding	1	3	3	3	1
TOTAL	7	8	12	10	6

texts mentioned skin contact as an option initially to keep the baby warm only, one text mentioned skin-to-skin contact in the context of preventing hypothermia (Bennett & Brown 1999). Instructions for infant resuscitation immediately after birth focused on technological interventions without attention to neonatal or maternal needs in relation to breastfeeding. Content gave the impression that the midwife is responsible for the stabilisation of the baby and ignores the role of the mother in assisting the baby to adapt to the new environment.

Newborn suckling reflexes and feeding behaviours

The adequacy of the evidence-based information about newborn suckling reflexes and feeding behaviour for effective breastfeeding contained in the texts, is shown in Table 2. Two texts discussed physiology of suckling reflexes and innate feeding behavior to suckle with reference to evidence-based research (Bennett & Brown 1999; Stables 1999). However, this information was not integrated with information about skin-to-skin contact or to breastfeeding initiation. Two texts (Bennett & Brown 1999; Lowdermilk, Perry & Bobak 2000) informed midwives of important research by Woolridge (1986) concerning newborn suckling techniques involving peristaltic tongue action for effective milk removal and prevention of sore nipples. This information was absent in other textbooks or inadequately illustrated (eg Sweet 1997). All textbooks under review emphasised the importance of positioning and attachment for prevention of sore nipples with lesser attention to the importance of observing effective milk removal and minimal or no mention of how skin-to-skin contact can facilitate the newborns' ability to attach correctly to the breast and learn to breastfeed. Illustrations of a newborn baby breastfeeding while in skin-to-skin contact with the mother were absent in all texts but two (Beischer, Mackay & Coldits 1997; Bennett & Brown 1999). The Bennett and Brown (1999) illustration was found only on the front cover of the text.

Instructions on how to assist mothers with the first breastfeed

Advice to midwives on how to most effectively assist women was scant to non-existent in the texts reviewed (as shown in Table 3). Written instruction centered on the importance of positioning and

attachment with very little emphasis on the newborn's ability to self-attach correctly and breastfeed effectively. For example, one text states that attachment of the baby to the breast for the first breastfeed is the midwife's responsibility (Bennett & Brown 1999). Three texts had diagrammatic representations portraying a midwife using an active hands-on approach to attach the baby to a woman's breast while the mother appears uninvolved (Bennett & Brown 1999; Stables 1999; Sweet 1997). These representations give the impression that it is the midwives' role to attach a baby to the breast, yet evidence clearly indicates that a hands-off approach is best practice and a baby can attach correctly without assistance if given uninterrupted opportunity (Righard & Alade 1990). While one text (Sweet 1997) mentioned the value of hands-off technique to assist, the associated diagrammatic representation was inconsistent with the text in that the midwife was depicted holding the baby to the mother's breast.

Several texts included illustrations of obviously less-than-optimal positioning and attachment of a baby at the breast, which were labelled 'correct attachment' (Beischer, Mackay & Coldits 1997; Sweet 1997). Notably, three texts emphasised the role of the midwife in initiating breastfeeding at birth while two texts referred to the nurses' role in this and mentioned the lactation consultant as the health professional responsible for follow-up. No text integrated infant feeding information with other midwifery concepts such as breastfeeding immediately after birth or when complications occurred.

Anatomy/physiology of breast function and benefits of breastfeeding

All texts were comprehensive in their coverage of the anatomy and physiology of breast structure and function and used relevant literature to substantiate points. Most texts explained the milk ejection reflex (MER) but only one text mentioned the MER in relation to milk transfer (Bennett & Brown 1999).

All texts promoted breastmilk as beneficial rather than the normal biological process. They all mentioned the immunological and antiallergenic properties of human milk with some reference to research literature. Four of the five textbooks devoted one chapter to breastfeeding (Beischer, Mackay & Coldits 1997; Bennett & Brown 1999; Stables 1999; Sweet 1997). This is possibly insufficient considering the expanse of information available on the

Table 3: Instructions to assist mothers

	Beisher, Mackay & Coldits 1997	Bennett & Brown 1999	Lowdermilk, Perry & Bobak 2000	Sweet 1997	Stables 1999
Instructions on how to facilitate initiation of first breastfeed	3	2	3	4	3
Information on what to inform mother regarding correct attachment for effective milk removal	1	1	4	2	3
TOTAL	4	3	7	6	6

Table 4: Anatomy/physiology of breast function and breastfeeding promotion

	Beisher, Mackay & Coldits 1997	Bennett & Brown 1999	Lowdermilk, Perry & Bobak 2000	Sweet 1997	Stables 1999
Anatomy/physiology of breast function	4	4	4	4	4
Benefits of breastfeeding	3	4	4	4	4
TOTAL	7	8	8	8	8

topic. One text included a longer, more comprehensive chapter (Lowdermilk, Perry & Bobak 2000) and discussed adverse effects of infant formula for infants. While other texts mentioned differences between infant formula and human milk, infant formula was mostly presented as an optional feeding choice. The adequacy of information in relation to anatomy/physiology of breast function and breastfeeding promotion in the five texts was relatively high as shown in Table 4.

Using the five-point rating scale the total possible score for information on the initiation of breastfeeding is 105. The Lowdermilk, Perry and Bobak (2000) and Sweet (1997) texts scored highest with 54 points (see Table 5 for summary).

DISCUSSION

As an educational resource, textbooks specific to midwifery practice need to provide adequate, evidence-based information and contribute to best practice. The review of contemporary midwifery texts identified inadequate information pertinent to the practice of uninterrupted skin-to-skin contact for correct attachment at the first breastfeed. Research evidence consistently reports that continuous skin-to-skin contact immediately after birth is important for adaptation, orientation and coordination of feeding behaviours for optimal attachment in the well neonate (Christensson et al 1992; Varendi, Porter & Winberg 1994; Righard & Alade 1990; Widstrom et al 1987), and of specific benefit to mothers for successful breastfeeding (Matthiesen et al 2001). This information has been available for over ten years and consistently confirmed by research (Matthiesen et al 2001; Porter & Winberg 1999; Renfrew, Woolridge & McGill 2000; Tessier et al 1998). As such, evidence-based research for breastfeeding initiation should be included comprehensively in midwifery texts. Inadequate content on this topic adds further to the claim that midwives may not always possess adequate knowledge to support women in their decision to breastfeed (Palmer & Kemp 1996; Worgan & Jones 1998).

Of particular note is that illustrations representing 'correct' attachment for suckling often depicted less than optimal positioning and attachment. Although the art of breastfeeding was traditionally learnt through visual exposure to other women breastfeeding, such opportunities are less available in western cultures. It is therefore imperative that illustrations in textbooks depict optimal positioning

and practices to support breastfeeding women. A good example of breastfeeding art is the specialty resource by Renfrew, Fisher and Arms (2000). In the present review, the text with most comprehensive, relevant information (Sweet 1997) lacked illustrations or showed poor positioning and attachment of a newborn breastfeeding.

The midwifery textbooks examined in this study emphasised breastfeeding problems from a medical perspective without giving clear direction on how to prevent problems and facilitate an enjoyable breastfeeding relationship for mothers and their newborns. Palmer and Kemp (1996, p16) assert that 'thousands of health professionals are denied access to sound information' and suggest industry-funded textbooks are often sabotaged by subtle messages that may undermine women's ability to provide breastmilk for their babies. According to Palmer and Kemp (1996) many texts concerning infant feeding for health professionals printed prior to 1990 contained misleading advice and in particular the popular midwifery textbook *Myles Textbook for Midwives* gave incorrect information up to the eleventh edition (Bennett & Brown 1989). Although information in texts has improved somewhat (Bennett & Brown 1999), there remains certain misleading and biased information in some texts.

Limitations

This analysis of midwifery textbooks is limited in that only a few texts were selected from the myriad of texts available internationally. However the included texts were recommended resources in Australian universities offering midwifery education. Secondly, the review of content was not cross-checked by an independent reviewer outside the research team. This may have resulted in reviewer bias, but none of the authors had a vested interest in any of the texts reviewed. The method used did attempt to improve previous approaches in that 'adequacy' was clearly defined and an objective scoring method devised. Thirdly, no survey was conducted to ascertain the reliance on midwifery texts for content on breastfeeding initiation. A recent national survey did reveal that over two-thirds of midwives reported not being well-prepared to support breastfeeding mothers and almost half reported their midwifery education left them unprepared for their role in helping women initiate breastfeeding (Cantrill, Creedy & Cooke 2003). Finally, there were more criteria for the review related to the category

Table 5: Total scores

	Possible total	Beisher, Mackay & Coldits 1997	Bennett & Brown 1999	Lowdermilk, Perry & Bobak 2000	Sweet 1997	Stables 1999
Benefits of skin-to-skin contact	65	17	23	27	30	27
Newborn suckling reflexes and feeding behaviours	20	7	8	12	10	6
Instructions to assist mothers	10	4	3	7	6	6
Anatomy/physiology of breast function and benefits of breastfeeding	10	7	8	8	8	8
TOTAL	105	35	42	54	54	47

dealing with the benefits of skin-to-skin contact. This may have resulted in a skewing of results. It may have been more rigorous to include equal numbers of items in each category. However, this approach was taken as Palmer and Kemp (1996) note that anatomy and physiology and benefits of breastfeeding issues have traditionally been addressed well in midwifery texts and the unique contribution of the present study relate to analysing content regarding skin-to-skin contact.

CONCLUSIONS AND RECOMMENDATIONS

The presence of misinformation in midwifery textbooks needs to be addressed urgently (Gupta & Kumar 1999). Perhaps midwives' attention could be drawn to a number of excellent speciality lactation texts (Brodribb 1997; Cox 2002; Lang 2002; Lawrence 1999; Minchin 1999; Newman & Pitman 2000; Renfrew, Fisher & Arms 2000; Renfrew, Woolridge & McGill 2000; Kroeger 2003). It may be useful to have an international committee with representatives from existing breastfeeding information authorities (for example, La Leche League or the Australian Breastfeeding Association) to critique information on lactation and infant feeding in textbooks for health professionals. Research collaborations such as the Cochrane Collaboration and Joanna Briggs Institute for Evidence-based Nursing and Midwifery could pool resources to extensively review text content and promote the use of the best possible breastfeeding information. All students in any health professional course need to be aware of, and have access to, the expansive scope of evidence-based research information currently available on lactation and infant feeding.

The findings of this analysis raise several issues for future research. Further research is required to identify knowledge deficits amongst midwives and subsequent impact on practice such as conflicting advice. Areas identified could then be targeted as key areas of change and evaluated using a pre-post intervention design. Clearly there is a need for more randomised controlled trials by midwives to critically inform effective midwifery practice. Outcomes of these trials then need to be implemented, included in textbooks and education programs as well as promoted to the general public and the media. Finally, the effectiveness of professional continuing education programs on the initiation of breastfeeding and maternal and infant outcomes need to be assessed to ensure the effectiveness of these activities.

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About the authors

Dr Marie Cooke is a Senior Lecturer for the Faculty of Nursing & Health, Griffith University, Nathan campus, Queensland, Australia.

Ruth Cantrill is a midwife with IBCLC accreditation. She recently completed a Masters of Midwifery (Hons) and is now undertaking a PhD. She is the BFHI project officer for the Redland Hospital, Queensland Health.

Professor Debra Creedy is the Dean, Faculty of Nursing & Health, Griffith University, Queensland, Australia.

Correspondence to:

Dr Marie Cooke
Faculty of Nursing & Health
Griffith University,
Kessels Road
Nathan, Brisbane, Q 4111 Australia
Ph 61+7+3875 7985
Fax 61+7+3875 5431
Email: M.Cooke@griffith.edu.au

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