The influence of context on the success of adoptive breastfeeding: Developing countries and the west

Karleen D Gribble BRurSc PhD

Abstract

It is commonly believed that adoptive mothers in developing countries are more successful breastmilk producers than women in the west. A review of published research supports this assertion. However, an examination of the practice of adoptive breastfeeding in developing countries and in the west via the literature reveals differences that may explain the variation in success. Adoptive mothers in developing countries may have greater milk production than mothers in the west because they are more knowledgeable about breastfeeding, practice frequent breastfeeding, remain in close physical contact with their children and live in cultures that are supportive of breastfeeding. They also have reproductive and breastfeeding histories that may make breastfeeding easier, though they are less likely to have pharmaceutical galactagogues available. Adoptive mothers in the west should be encouraged to maximise their milk supply by emulating the mothering styles of women in developing countries and developing a strong support network for breastfeeding. It may be that most adoptive mothers are physically capable of producing sufficient breastmilk for their child but that in the west, sociocultural factors act as preventatives.

Keywords: adoptive breastfeeding, culture, milk production

Breastfeeding Review 2004; 12(1): 5–13

INTRODUCTION

Breastmilk is the standard food for babies (Wiessinger 1996) and breastfeeding is part of normal mothering, promoting child-mother attachment and providing pleasure and comfort to the baby (Blass 1994). Pregnancy and birth are not absolute prerequisites for lactation, thus, it is possible for women to breastfeed adopted babies. Adoptive breastfeeding has been practiced for millennia and women who breastfeed their adopted child are seeking to provide both the nutritional benefits of breastmilk and the positive social aspects of breastfeeding (Auerbach & Avery 1981; Peterson 1994).

Examination of published research raises the issue of why adoptive breastfeeding is less successful in terms of milk production in the west than it is in developing countries. Perhaps, if the reasons for greater breastmilk production in developing countries were identified it would be of assistance to women in the west. This paper will explore characteristics of adoptive breastfeeding in both contexts in order to discover the basis for the differences in milk making success and to better understand how adoptive breastfeeding can proceed in order to maximise milk production.

In this paper, the **west** signifies cultures within countries that are a part of Western Europe, Australia and North America. **Developing countries** refers to traditional or rural contexts within nations that are considered to have developing economies by the World Bank (breastfeeding in urban settings is excluded for the purposes of this review because of the pressures often involved with breastfeeding in any city (Greiner, Van Esterik & Latham 1981; Obermeyer & Castle, 1997)). In comparing adoptive breastfeeding in developing countries and the west it needs to be recognised that these designations have been chosen for convenience only and that there are limitations to their use. However, there are sufficient differences between these groups to validate their use to aid understanding the variation in success of adoptive breastfeeding. Others have also used similar labels (eg Gussler & Briesemeister 1980 used *traditional* and *urban* to distinguish between two groups of mothers).

The breast is ordinarily prepared for lactation during pregnancy. Under the influence of oestrogen, progesterone, prolactin and other hormones the ductal system proliferates and differentiates and the lobes, lobules and alveoli increase in size (Riordan 1999). Without pregnancy the same breast changes can be achieved through nipple stimulation (via suckling or breast pumping), which causes the secretion of prolactin (Kolodny, Jacobs & Daughday 1972), growth of secretory alveoli and production of milk (World Health Organisation 1998).

It is widely believed that adoptive mothers in developing countries are more successful milk producers than women in the west (Thorley 1997), a view supported by the research in this study. Statements from health professionals also suggest that women in developing countries make breastmilk more easily. In the west, breastfeeding experts usually note that adoptive breastfeeding is possible but caution that milk production will likely be inadequate. For example:

> *It is possible to breastfeed an adopted baby. Though it is unlikely you will be able to stimulate your supply enough to fully breastfeed (Renfrew, Fischer & Arms 1990, p107).*

> *Mothers who have breastfed their adopted babies all agree that it seemed the natural thing to do. However, only in rare cases can an adopted baby be fully breastfed without supplementation* (NMAA 1998, p12). [New edition is in print – Ed]

Scientific papers on adoptive breastfeeding have been followed by letters to the editor warning that the hopes of adoptive parents should not be raised.

> *If (the mother) really wants to try (adoptive nursing) she should be told how difficult it will probably be* (Carey 1981, p973).

Whereas, for those who have worked in developing countries adoptive breastfeeding is viewed as more easily achieved.

> *Mothers and health workers should be encouraged to attempt relactation and gain a firsthand appreciation of the simplicity and ease with which this process can be accomplished* (Brown 1977, p119).

> *In my experience...(inducing lactation) worked well in all cases in which the adoptive mother was motivated and received the necessary support from her family* (Kramer 1995, p188).

LITERATURE REVIEW

The literature was searched using the Cumulative Index to Nursing & Allied Health Literature (CINAHL) and Medline, using the words *relactation, induced lactation* and *adoptive breastfeeding* as search terms. Any study of relactation involving a non-biological child or induced lactation was included in the analysis if there were multiple subjects in the study. The proportions of women who were able to exclusively breastfeed, able to cease supplementation and the context in which they breastfed were considered. Where papers did not contain all details of interest, the required information was obtained through correspondence with study authors (eg in some cases it was not clear whether women were exclusively breastfeeding or whether they lived in an urban or rural environment). A summary of results of this analysis is presented in Table 1. Exploration of the context of breastfeeding in developing countries and the west was carried out through examination of the literature. Relevant research was either already familiar to the author or was located via searches of the aforementioned databases including such terms (singly or in combination) as *breastfeeding, culture, sleep, support, frequency, perceived insufficient milk syndrome* and *milk production*. Integration of data from the literature on adoptive breastfeeding and the context of breastfeeding resulted in the following discussion of the possible reasons for difference in breastmilk production in adoptive breastfeeding in developing countries and the west.

RESULTS

Characteristics of adoptive breastfeeding in developing countries and the west

Some generalisations may be made about the characteristics of adoptive breastfeeding in developing countries and the west. These characteristics can be divided into the following groupings: knowledge of breastfeeding; beliefs surrounding breastfeeding and child care; encouragement to breastfeed; support for mothering; infertility and body confidence; pregnancy and breastfeeding history; use of pharmaceutical galactagogues and factors impacting hormone levels. Each of these characteristics will be discussed separately.

Table 1: Summary of studies conducted on adoptive breastfeeding in developing countries and the west

Reference	Countries	Number commencing breastfeeding	Percentage able to to exclusively breastfeed	Percentage able to to stop milk supplementation*	Other information
Hormann 1977	North America[1]	65	1.5	Unknown	
Auerbach & Avery 1981	US and other countries[1]	240	1.25	46	Average age of breastfeeding just over six months, longer breastfed greater maternal satisfaction
Thearle & Weissenberger 1984	Australia[1]	6	0	0	Three women breastfed for <2 months. Their milk production may not have peaked
Livingstone & Armstrong 1999	Canada[1]	10	0	Unknown	
Banapurmath, Banapurmath Kesaree 1993	India[2]	10	20	Unknown	Five women persisted for less & than 2 weeks and did not produce milk. Their motivation is questioned.
Nemba 1994	Papua New Guinea[2]	27	89	89	Only three women did not exclusively breastfeed; one gave up early, one had the child reclaimed the third situation is unknown.
Abejide *et al* 1997	Nigeria[2]	6	100	100	
Lakhkar 2000	India[2]	12	8	67	Four women did not produce milk but lacked motivation and family support and breastfed very infrequently.

* Child receiving other non-milk (solid) foods [1]Western societies [2]Developing countries

Participants in all the studies in developing countries lived in environments in which breastfeeding is normal practice and where close proximity between mother and child is maintained. Women in the study carried out by Banapurmath, Banapurmath & Kesaree (1993) lived in a semi-urban area or small villages. In the studies by Nemba (1994) and Abejide et al (1997) they lived in villages or small towns. Participants in the study by Lakhkar (2000) came from urban and rural backgrounds.

Knowledge of breastfeeding

In developing countries, breastfeeding is ubiquitous (Popkin, Bilsborrow & Akin 1982) and women learn about breastfeeding through observation from a young age resulting in a high level of knowledge of breastfeeding (Jelliffe & Jelliffe 1972). However, in the west, breastfeeding has been marginalised and is not easily observed (Van Esterik 1995). Thus women do not learn about breastfeeding until they deliberately seek to do so and the information they receive may well be inaccurate, decreasing their confidence in breastfeeding (Maher 1992; Dettwyler 1995; Dennis 1999). Both lack of information about breastfeeding and reduced confidence in breastfeeding have been implicated in increased risk of breastfeeding difficulties and specifically in low milk supply (Hill & Aldag 1991; McCarter-Spaulding & Kearney 2001).

Beliefs surrounding breastfeeding and child care

A mother's beliefs influence how she cares for her child (Kannan, Carruth & Skinner 1999). Differences exist between women in developing countries and in the west regarding: frequency of feeding; contact between mother and child; sleeping practices and the view of the breast.

Frequency of breastfeeding

There are two general patterns of breastfeeding: *unrestricted* where breastfeeding is carried out ad lib day and night and *restricted* where breastfeeding is constrained to periods at culturally acceptable spacings (Quandt 1986). The unrestricted breastfeeding style is common in the contexts of the studies in developing countries in Table 1 (Agyei 1984; Davies-Adetugbo & Ojofeitimi 1996; Choudhry 1997; personal communications with authors of papers in Table 1). In contrast, restricted breastfeeding predominates in western cultures (Quandt 1995) resulting in less frequent breastfeeding than in developing countries (Lozoff & Brittenham 1979). Breastfeeding frequency is important to adoptive breastfeeding firstly because frequent suckling at the breast maximises prolactin secretion, accelerating breast development (World Health Organisation 1998) and secondly because frequent emptying of the breast increases milk production (Daly et al 1996).

Contact between mother and child

Babies in developing countries often spend a large proportion of their time in close contact with their mother (Lozoff & Brittenham 1979). However, in the west habitually carrying babies is less accepted and the perceived necessity of items such as prams and cots place physical distance between mother and child (Gussler & Briesemeister 1980; Quandt 1995). Separation of mother and child affects breastfeeding frequency even when *feeding on demand* is practiced because a child in close, physical proximity to the breast may be breastfed more easily, potentially without maternal assistance (Vis & Hennart 1978). Thus, breastfeeding frequency is decreased by as much as 50% when children are not kept close to their mothers (Vis & Hennart 1978). Cultural filters also influence the perception of feeding cues and western women whose breastfeeding pattern and practice designates that they restrict breastfeeding may indicate that they breastfeed on demand (Quandt 1986). In addition, close contact positively affects milk production through increased maternal confidence (Affonso, Wahlberg & Persson 1989; Hurst et al 1997) and increased oxytocin release which maximises breast emptying in response to suckling (Uvnas-Moberg & Eriksson 1996).

Sleeping arrangements are important when examining physical contact between babies and mothers. Co-sleeping is routinely practiced in developing countries, but in western societies co-sleeping and night breastfeeds can be seen as undesirable (Maher 1992; Morelli et al 1992; Pinilla & Birch 1993). Co-sleeping results in an increase in the both the time spent breastfeeding and the frequency of night feeds (McKenna, Mosko & Richard 1997) and night suckling is particularly beneficial to adoptive breastfeeding since prolactin secretion is enhanced at night (Stern & Reichlin 1990).

View of the breast

In developing countries, breasts are viewed as having multiple usage in providing nutrition, comfort and sucking opportunities to babies (Vis & Hennart 1978). Thus, children are encouraged to suckle at the breast to ease distress or to satisfy non-nutritive suckling needs, which in some cases has resulted in inadvertent relactation (Slome 1956). Acceptance that breasts are for babies also makes exposure of the breast to suckle a child acceptable (Dettwyler 1995). However, in western countries the breast has been sexualised and breastfeeding is tolerated by many only for provision of nutrition to young babies (Van Esterik 1988; Dettwyler 1995). As a result, pacifiers are commonly used resulting in reduced frequency and duration of breastfeeds (Aarts et al 1999; Victoria et al 1997). In addition, sexualisation of the breast makes it difficult for many women to breastfeed in public, thereby reducing breastfeeding frequency (Maher 1992; Dettwyler 1995).

Encouragement to breastfeed

Women in developing countries are expected to breastfeed the babies born to them and adoptive breastfeeding is routine in some places (Wieschhoff 1940; Mead 1963; Shann & Biddulph 1983; Abejide et al 1997). However, women in the west maintain a choice between breastfeeding and bottle feeding (Dettwyler 1995; Van Esterik 1995) and most people are unaware that it is possible to breastfeed adopted children. The rarity of adoptive breastfeeding makes breastfeeding more difficult for adoptive mothers (Gribble 2001).

Research in the area of adoptive breastfeeding emphasises the support provided to women in developing countries by health professionals (Shann & Biddulph 1983; Banapurmath, Banapurmath & Kesaree 1993; Abejide et al 1997; Lakhkar 2000; De Bharati Pandit et al 2002). However, when women in the west breastfeed an adopted child they often do so in isolation, without support and often facing active discouragement from their health professionals (Livingstone & Armstrong 1999; Gribble 2001). Health and adoption professionals may even perceive the desire to breastfeed an adopted child as an indication of psychological problems (Carey 1981; Johnston 1998; Livingstone & Armstrong 1999).

Health professionals in developing countries encourage women to breastfeed by warning them of the dangers associated with alternative foods (Brown 1977; Banapurmath, Banapurmath & Kesaree 1993; Abejide et al 1997; Lakhkar 2000; De Bharati Pandit et al 2002). Whereas in the west, it is maintained that while breastfeeding can play a role in nurturing an adopted child, the importance of breastmilk production should be minimised (Lawrence 1998; Riordan & Auerbach 1999a). Low milk supply is certainly not exclusive to adoptive mothers and anthropologists have suggested that the phenomenon of perceived lactational insufficiency is one in which particular communities of women are socialised to lack confidence in their ability to make milk (Gussler & Briesemeister 1980). Adoptive mothers in the west have probably been socialised in this way more than any other group (Lawrence 1998; Renfrew, Fischer & Arms 1990; NMAA 1998; Riordan & Auerbach 1999a) and lack of confidence may play a role in their lower milk supply. That adoptive mothers in the west sometimes state that they are breastfeeding for emotional reasons rather than nutrition (Auerbach & Avery 1981) might be a direct result of a lack of confidence in milk making ability. For this reason, some mothers may not attempt to maximise milk production.

Mothers' confidence in their capacity to make milk may also impact milk supply via the choice of supplementation method. Women in developing countries generally use temporary methods of supplementation such as dripping milk over the breast or cup/spoon feeding post-breastfeed (Abejide et al 1997; World Health Organisation 1998; Lakhkar 2000). However, women in the west commonly use tube feeding systems, which provide breast stimulation whilst supplementing (World Health Organisation 1998), but are often used long term and can provide more supplement than is required.

Interestingly, whilst support is important in adoptive breastfeeding, external pressure to breastfeed may negatively impact milk production. Banapurmath, Banapurmath and Kesaree (1993) noted in their study that half of the adoptive mothers who attempted breastfeeding on urging from health professionals were not motivated and ceased efforts after a short period of time. Similarly, Lakhkar (2000) found that one third of adoptive mothers advised to breastfeed lacked motivation and family support, breastfed very infrequently and did not see milk produced. In contrast, women in the west, with their lack of societal support, must be extremely motivated to attempt adoptive breastfeeding, which may itself positively affect milk production if they know how to increase their milk supply.

Support for mothering

In many developing countries, it is believed that it is essential for mothers to have rest and assistance as they care for a new baby (Brown 1977; Raphael & Davis 1985; Choudhry 1997) and adoptive mothers are sometimes hospitalised in order to facilitate lactation (Abejide et al 1997; Lakhkar 2000; Banapurmath, Banapurmath & Kesaree 1993; De Bharati Pandit et al 2002). However, in the west it is not generally expected that new mothers require a high level of assistance (Raphael & Davis 1985; Dykes & Williams 1999) and in cases of adoption the expectation is even lower (Human Rights and Equal Opportunity Commission 2002). Adoption is a culturally acceptable practice in many developing countries (Mead 1963; Nemba 1994; Kramer 1995) but in the west, many view adoption as a defective family configuration (Miall 1987). A lack of acceptance of adoption means that support structures for adoptive mothers, such as employment leave, are often inferior to that provided to biological mothers (Human Rights and Equal Opportunity Commission 2002). Inferior leave provision may mean that adoptive mothers are required to return to work shortly after the placement of their adopted baby and so be separated from the child making breastfeeding more difficult (Gussler & Briesemeister 1980; Maher 1992). In developing countries however, mothers are more likely to be accompanied by their babies if they return to work, making continuance of unrestricted breastfeeding possible (Obermeyer & Castle 1997).

Infertility and body confidence

In considering the literature, it becomes clear that adoptive mothers in the west often have a history of infertility but women in developing countries are more likely to adopt because of a child's immediate need for a mother (eg the mother has died) (Auerbach & Avery 1981; Nemba 1994; Abejide et al 1997; Eregie 1997; Livingstone & Armstrong 1999; Van Gulden & Bartels-Rabb 1999). This is significant since some conditions associated with infertility are known to affect milk production (Marasco, Marmet & Shell 2000). A history of infertility may also negatively impact a woman's confidence in her body (Dupuis 1997; Livingstone & Armstrong 1999) and thus confidence in her ability to breastfeed.

Pregnancy and breastfeeding history

Adoptive mothers in developing countries are more likely to have been pregnant and to be experienced breastfeeders than women in the west (Auerbach & Avery 1981; Thearle & Weissenberger 1984; Nemba 1994; Livingstone & Armstrong 1999). Since the final stage of breast maturation, mammogenesis, occurs during pregnancy women who have been pregnant have a theoretical advantage compared with those who have not when it comes to breastfeeding (Riordan 1999). However, the research is inconsistent on whether prior pregnancy results in increased milk supply (Hormann 1977; Auerbach & Avery 1981).

Previous breastfeeding experience nonetheless may positively affect breastfeeding. Some research has found that women more easily produce milk with subsequent babies than with their first (Hill, Aldag & Chatterton 1999; Ingram, Woolridge & Greenwood 2001). However, where breastfeeding is normalised and culturally supported, lack of breastfeeding experience does not negatively impact milk production (Amatayakul et al 1999). It may be that knowledge of breastfeeding gained through a supportive culture or previous breastfeeding experience results in more physiologically compatible breastfeeding behaviour and increased milk production.

For women breastfeeding an adopted child, lack of breastfeeding experience might make it more difficult for them to determine what supplementation is required. Judging milk sufficiency is difficult since the adequacy of feeding can only be assessed through indirect means such as perceived contentment of the baby or growth over a period of time (Obermeyer & Castle 1997). As Greiner, Van Esterik and Latham (1981) suggested, there are many normal physiological events associated with lactation that may be misinterpreted as signs of needing to supplement. These include increases in breastfeeding demand and unsettledness in the baby. Some researchers (Greiner, Van Esterik & Latham 1981; Obermeyer & Castle 1997) have postulated that women who are conditioned to believe that they are susceptible to producing insufficient milk may erroneously interpret such signs as meaning that supplementation is required. Experienced breastfeeders however, may be able to more correctly interpret their baby's behaviour.

The published research also suggests that babies adopted in developing countries are more likely to have been breastfed before adoption than those in the west (Auerbach & Avery 1981; Abejide et al 1997). As previously discussed, babies in developing countries, are often adopted after maternal death (Abejide et al 1997; Eregie 1997) prior to which the child was breastfed. In addition, some babies may be breastfed by another woman while the adoptive mother builds her milk supply (Nemba 1994). Prior breastfeeding experience makes initiation of suckling easier and may also result in better breastfeeding technique on behalf of the baby, optimising milk removal (Riordan & Auerbach 1999b).

Use of drugs

There are a number of pharmaceutical agents that can be employed to assist adoptive breastfeeding mothers (Emery 1996) and it appears they are more frequently used in the west (Thearle & Weissenberger 1984; Abejide et al 1997; Livingstone & Armstrong 1999; Riordan & Auerbach 1999a; Lakhkar 2000). Drugs for adoptive breastfeeding fall into two categories: exogenous oestrogen/progesterone (to mimic pregnancy hormones) and galactagogues (to increase prolactin secretion) (Thearle & Weissenberger 1984; World Health Organisation 1998). It might be expected that the more common use of drugs in the west would increase the milk supply of these women. However, it may be that other factors diminish the impact of this advantage or that a reliance on pharmaceutical agents results in the neglect of other methods to increase milk supply.

Factors impacting hormone levels

As mentioned, high prolactin levels are vital for initiation of lactation not associated with pregnancy. Basal prolactin levels are lower in nulliparous women as compared to parous women (Musey et al 1987) and as stated previously, adoptive mothers in the west are more likely to be nulliparous. In addition, prolactin levels are influenced by body condition, with thinner women having more prolactin secreted in response to suckling (Lunn et al 1984; Kjolhede 2003) as well as higher basal prolactin levels, than fatter women (Kopelman 2000). As women in developing countries are likely to be less well nourished than those in the west this may be significant (Bianchini, Kaaks & Vainio 2002). Obesity, which is common in the west, is also associated with increased oestrogen secretion (Bianchini, Kaaks & Vainio 2002) and since oestrogen is a lactation suppressant this may affect milk production (Koetsawang 1987).

DISCUSSION

In western societies, it is often presupposed that adoptive mothers will have insufficient breastmilk however, as shown in Table 1, research from developing countries demonstrates that this need not be the case. In considering the characteristics of adoptive breastfeeding in developing countries and in the west it becomes clear that context has an enormous impact on how breastfeeding is practiced and thus on the success of breastmilk production. As adoptive mothers in developing countries are more successful breastmilk producers it is logical to suggest that women in the west should emulate breastfeeding as practiced in developing countries if they wish to maximise their milk supply. Although there are many differences in breastfeeding between developing countries and the west the imitable differences can be encapsulated as having knowledge and support for breastfeeding and breastfeeding frequently.

Developing increased knowledge and having support for breastfeeding will assist adoptive mothers in the west to be more successful milk producers. This conclusion is based not only on the comparison to women in developing countries but also on research which has found that breastfeeding education results in increased milk production in women with supply issues (Mathur et al 1992). Seeking general breastfeeding information in addition to that specific to adoptive breastfeeding is advisable because of the generally low level of breastfeeding knowledge amongst western women (Dettwyler 1995). In addition, building a network of breastfeeding knowledgeable contacts will aid mothers in increasing their knowledge of breastfeeding (Ladas 1972; Schafer et al 1998) and their confidence in the integrity of breastfeeding (Raj & Pilchta 1998). It is also advantageous for women to access others breastfeeding adopted children, if not face-to-face then via the internet (Gribble 2001). Prearrangement of a support network for the post-placement period will help women to concentrate on developing the mother-child relationship and initiating breastfeeding (Raphael & Davis 1985). Thus, friends and relatives can assist in relieving the mother of day-to-day duties and allow her a period of seclusion post-placement. Education of her support network should

include emphasising that adoptive mothers need as much support post-placement as biological mothers post-birth (Van Gulden & Bartels-Rabb 1999).

In order to increase milk production, it is beneficial for mothers to maximise physical contact with their child and breastfeed as frequently as possible (Quandt 1986). Use of the breast as a comforter and to meet non-nutritive suckling needs is also desirable (Vis & Hennart 1978). Babies whose mothers are responsive and remain close are also likely to be less unsettled (Obermeyer & Castle 1997), decreasing the likelihood that a mother will conclude that increased supplementation is required when it is not. Since providing unrestricted breastfeeding and close contact is contrary to mainstream beliefs about childcare in the west (Quandt 1986) it is imperative that women obtain support for their mothering. Support will assist mothers in becoming comfortable with the necessary style of parenting and in dealing with unsupportive contacts (Ladas 1972). Such support may be found, for example, in mother-to-mother breastfeeding support organisations (Cable & Rothenberger 1984). Frequent association with other breastfeeding women may also help mothers to feel comfortable breastfeeding in public as they become acclimatised to the breast as a way of feeding a baby rather than as a sexual organ (Dettwyler 1995). Thus, knowledge of and support for breastfeeding act as prerequisites for maximising milk production in adoptive mothers.

The requirement for adoptive mothers in the west to optimise breastfeeding behaviour in order to maximise milk supply does not merit the conclusion that breastfeeding is fragile. Rather, it suggests that although lactation is sufficiently flexible for many biological mothers to produce enough milk in spite of breastfeeding infrequently (Greiner, Van Esterik & Latham 1981; Quandt 1986), adoptive mothers must breastfeed in a way more congruent with the physiology of lactation. That women can produce milk without prior pregnancy is an indication of the robustness of lactation.

Lactation professionals can assist adoptive mothers through a greater understanding of the research, which suggests that it is common for adoptive mothers to dispense with supplementation (Auerbach and Avery 1981; Banapurmath, Banapurmath and Kesaree 1993; Nemba 1997; Abejide et al 1997). Thus, they can encourage women in their ability to lactate, with the understanding that it is impossible to tell how much milk an individual mother might make but that there is much that can be done to maximise milk production. It can also be stated that although they may need to supplement their milk initially it is likely that eventually this will be unnecessary if they breastfeed for long enough (Riordan & Auerbach 1999a). It is important however, that mothers be aided in devising a plan for safely reducing supplements and in minimising the likelihood that the baby will become addicted to the method of supplementation. The support of lactation professionals is vital for adoptive mothers in the west given the breastfeeding unfriendly culture (Raj & Pilchta 1998).

Some may believe that a mother not supplementing with other milks but feeding her baby solid food does not have a full milk supply because she is not exclusively breastfeeding. However, this definition is irrelevant in cases where the child is more than six months at placement and does not consider that many adoptive mothers regard dispensing with milk supplements as the critical issue in milk supply (Auerbach & Avery 1981). Informing women that adoptive mothers rarely produce a full milk supply can negatively impact a mother's breastfeeding experience. For example, in one instance a mother reported that she became extremely anxious when ceasing supplementation because she had been told this would not be possible (unpublished case study). In another case, a lactation consultant assumed that low milk supply was due to the baby being adopted and overlooked poor attachment at the breast. This problem, once corrected resulted in increased milk supply and removed the need for supplements (unpublished case study). However, making mothers aware of the controversy surrounding milk supply will aid them in interpreting information they may read or receive from others.

Statements that diminish the importance of breastmilk to the adopted child are relatively common in the literature (Lawrence 1998; Peterson 1994) and presumably are intended to protect adoptive mothers from disappointment. Though well intended, this attitude may disempower women and make it difficult for them to grieve if their milk supply does not meet their expectations. Adoptive mothers in the west who desire breastfeeding are acting against prevailing societal norms (Dettwyler 1995) indicating a significant investment in breastfeeding itself. Because of this interest they are well aware that breastmilk is promoted as of great importance to biological children but not adopted children and may experience such statements as paternalism.

It should be noted that not all of the characteristics of adoptive breastfeeding in developing countries can be emulated. Mothers cannot change their pregnancy, breastfeeding or infertility history, the breastfeeding history of their baby, nor the attitudes of others towards breastfeeding and adoption. The significance of these factors is unknown and deserving of further research. However, if western women imitate mothers in developing countries where possible, greater milk production will result.

Assisting adoptive mothers to maximise their milk supply does not minimise the emotional impact of breastfeeding. In fact, the breastfeeding relationship may be more important for adopted children than children born into their families. Many adopted children have histories that leave them emotionally vulnerable (Drury-Hudson 1994) and the act of breastfeeding has been observed to assist children in healing past hurts and to advance bonding/attachment (Gribble 2003). In addition, the promotion of close physical contact between mother and child and frequent breastfeeding will not only benefit the milk supply of a mother breastfeeding her adopted child, but will also assist development of a positive attachment relationship (Anisfeld et al 1990; Gribble 2003), something that will have enormous long-term benefits for the child (Drury-Hudson 1994; Bowlby 1969).

Adoptive breastfeeding is an area of human lactation that has received very little attention from researchers. This paper contains no original research but has examined over 25 years of research in just eight papers, a relatively small amount upon which to base conclusions. However, the aim of this paper was to raise possibilities and stimulate discussion on the subject of adoptive breastfeeding, pointing out inconsistencies in what is popularly believed, what research has shown and using cross-cultural comparison to increase understanding. Further research in the west, including the recommendations for behavioural change suggested here, may elucidate the potential for milk making success in adoptive breastfeeding.

CONCLUSIONS

This exploration of adoptive breastfeeding in developing countries and in the west has identified differences in breastfeeding and mothering techniques that may explain the reported greater

success in milk-making in women in developing countries. Some of these factors may be modified by mothers in the west and utilised to their advantage. Women should seek to develop their knowledge of and support for breastfeeding and to maximise breastfeeding frequency. Thus, rather than being informed that they will be unsuccessful in milk production it is beneficial for mothers to be educated about the experience of women in developing countries. It may well be that even in the west, most adoptive mothers are physiologically capable of making enough milk for their baby but, as Obermeyer and Castle (1997) noted, sociocultural factors impede women from achieving their milk-making potential.

REFERENCES

Aarts C, Hornell A, Kylberg E, Hofvander Y, Gebre-Medhin M 1999, Breastfeeding patterns in relation to thumb sucking and pacifier use. *Pediatrics* 104: e50. http://www.pediatrics.org/cgi/content/full/104/4/e50. Accessed 01/06/2003.

Abejide OR, Tadese MA, Babajide DE, Torimiro SEA, Davies-Adetugbo AA, Makanjuola OA 1997, Non-puerperal induced lactation in a Nigerian community: case reports. *Ann Trop Paediatr* 17: 109-114.

Affonso D, Wahlberg V, Persson B 1989, Exploration of mother's reaction to the kangaroo method of prematurity care. *Neonatal Netw* 7: 43-51.

Agyei WK 1984, Breast-feeding and sexual abstinence in Papua New Guinea. *J Biosoc Sci* 4: 451-461.

Amatayakul K, Wongsawasdi L, Mangklabruks A, Tansuhaj A, Ruckphaopunt S, Chiowanich P, Woolridge MM, Drewett RF, Baum JD 1999, Effects of parity on breastfeeding: a study in the rural setting in northern Thailand. *J Hum Lact* 15: 121-124.

Anisfeld E, Casper V, Nozyce M, Cunningham N 1990, Does infant carrying promote attachment? An experimental study of the effects of increased physical contact on the development of attachment. *Child Dev* 61: 1617-1627.

Auerbach KG, Avery JL 1981, Induced lactation: a study of adoptive nursing by 240 women. *Am J Dis Child* 135: 340-343.

Banapurmath CR, Banapurmath S, Kesaree N 1993, Successful induced non-puerperal lactation in surrogate mothers. *Indian J Pediatr* 60: 639-643.

Bianchini F, Kaaks R, Vainio H 2002, Overweight, obesity and cancer risk. *Lancet Oncol* 3: 565-574.

Blass EM 1994, Behavioral and physiological consequences of suckling in rat and human newborns. *Acta Paediatr* 397(suppl): 71-71.

Bowlby J 1969, *Attachment and Loss, Vol 1: Attachment*. Hogarth Press, London.

Brown RE 1977, Relactation: an overview. *Pediatrics* 60: 116-120.

Cable TA, Rothenberger LA 1984, Breast-feeding patterns among La Leche League mothers: a descriptive survey. *Pediatrics* 73: 830-835.

Carey WB 1981, Induced lactation. *Am J Dis Child* 135: 973-974.

Choudhry UK 1997, Traditional practices of women from India: pregnancy, childbirth and newborn care. *J Obstet Gynecol Neonatal Nurs* 26: 533-539.

Daly SE, Kent JC, Owens RA, Hartmann PE 1996, Frequency and degree of milk removal and the short-term control of human milk synthesis. *Exp Physiol* 81: 861-875.

Davies-Adetugbo AA, Ojofeitimi EO 1996, Maternal education, breastfeeding behaviours and lactational amenorrhea: studies among two ethnic communities in Ile Ife. *Nutr Health* 11: 115-126.

De Bharati Pandit NC, Mishra SK, Pappu K, Chaudhuri SN 2002, Initiating the process of relactation: an institute based study. *Indian Pediatr* 39: 173-178.

Dennis C 1999, Theoretical underpinnings of breastfeeding confidence: a self efficacy framework. *J Hum Lact* 15: 195-201.

Dettwyler KA 1995, Beauty and the breast. In Stuart-Macadam P, Dettwyler KA (eds) *Breastfeeding: Biocultural Perspectives*. Aldine de Gruyter, New York. pp 167-216.

Drury-Hudson J 1994, Some effects of attachment disturbance on child behaviour. *Children Australia* 19: 17-22.

Dupuis SR 1997, Understanding reproductive loss. *Diss Abstr Int: Section B: the Sciences and Engineering*. Vol 58. University Microfilms International.

Dykes F, Williams C 1999, Falling by the wayside: a phenomenological exploration of perceived breast-milk inadequacy in lactating women. *Midwifery* 15: 232-246.

Emery MM 1996, Galactagogues: drugs to induce lactation. *J Hum Lact* 12: 55-57.

Eregie CO 1997, Non-puerperal lactation in nutritional rehabilitation: case study. *East Afr Med J* 74: 59-60.

Greiner T, Van Esterik P, Latham MC 1981, The insufficient milk syndrome: an alternative explanation. *Med Anthropol* 5: 233-260.

Gribble K 2001, Mother-to-mother support via the Internet: a new method for an old model. *Breastfeeding Review* 9: 13-19.

Gribble K 2003, Mother comfort: the breastfeeding of older adopted children. *Milk, Mammals and Marsupials: An International Perspective,* International Lactation Consultants Association Conference 1st-3rd August, Sydney.

Gussler JD, Briesemeister LH 1980, The insufficient milk syndrome: a biocultural explanation. *Med Anthropol* 4: 145-173.

Hill P, Aldag J 1991, Potential indicators of insufficient milk supply syndrome. *Res Nurs Health* 14: 11-19.

Hill PD, Aldag JC, Chatterton RT 1999, Breastfeeding experience and milk weight in lactating mothers pumping for preterm infants. *Birth* 26: 233-238.

Hormann E 1977, Breastfeeding the adopted baby. *Birth Fam J* 4: 165-173.

Human Rights and Equal Opportunity Commission 2002, *A Time to Value: Proposal for a National Paid Maternity Leave Scheme.* Human Rights and Equal Opportunity Commission, Sydney.

Hurst MM, Valentine CJ, Renfro L, Burns P, Ferlic L 1997, Skin-to-skin holding in the neonatal intensive care unit influences maternal milk volume. *J Perinatol* 17: 213-217.

Ingram J, Woolridge M, Greenwood R 2001, Breastfeeding: it is worth trying with the second baby. *Lancet* 358: 986-987.

Jelliffe DB, Jelliffe EFP 1972, Non-puerperal induced lactation. *Pediatrics* 50: 170-171.

Johnston PI 1998, *Launching a baby's adoption*. Perspective Press, Indianapolis. p 82.

Kannan S, Carruth BR, Skinner J 1999, Cultural influences on infant feeding beliefs of mothers. *J Am Diet Assoc* 99: 88-90.

Kjolhede C 2003, Prepregnant overweight and obesity diminish the prolactin response to suckling in the first week postpartum. *Pediatr Res* 53: 180A

Koetsawang S 1987, The effect of contraceptive methods on the quality and quantity of breastmilk. *Int J Gynaecol Obstet* 25(Suppl): 115-128.

Kolodny RC, Jacobs LS, Daughday WH 1972, Mammary stimulation causes prolactin secretion in non-lactating women. *Nature* 238: 284-286.

Kopelman PG 2000, Physiopathology of prolactin secretion in obesity. *Int J Obes Relat Metab Disord* 24 Suppl: S104-S108.

Kramer P 1995, Breastfeeding of adopted infants. *Br Med J* 311: 188-189.

Ladas A 1972, Breastfeeding: the less available option. *J Trop Pediatr Environ Child Health* 18: 318-346.

Lakhkar BB 2000, Breastfeeding adopted babies. *Indian Pediatr* 37: 1114-1116.

Lawrence RA 1998, *Breastfeeding a Guide for the Medical Profession*, 5th edition. CV Mosby Company, St Louis.

Livingstone V, Armstrong C 1999, Breastfeeding and adoption: a retrospective qualitative study. *J Soc Obstet Gynaecol Canada* 21: 1161-1168.

Lozoff BM, Brittenham G 1979, Infant care: cache or carry. *Pediatrics* 95: 478-483.

Lunn PG, Austin S, Prentice AM, Whitehead RG 1984, The effect of improved nutrition on plasma prolactin concentrations and postpartum infertility in lactating Gambian women. *Am J Clin Nutr* 39: 227-235.

Maher V 1992, Breastfeeding in cross-cultural perspective: paradoxes and proposals. In Maher V (ed). *The Anthropology of Breast-Feeding*. Berg, Oxford. pp 151-180

Marasco L, Marmet C, Shell E 2000, Polycystic ovary syndrome: a connection to insufficient milk supply? *J Hum Lact* 16: 143-148.

Mathur G, Chitranshi S, Mathur S, Singh SB, Bhalla M 1992, Lactation failure. *Indian Pediatr* 29: 1541-1544.

McCarter-Spaulding DE, Kearney MH 2001, Parenting self-efficacy and perception of insufficient breast milk. *J Obstet Gynecol Neonatal Nurs* 30: 515-522.

McKenna JJ, Mosko SS, Richard CA 1997, Bedsharing promotes breastfeeding. *Pediatrics* 100: 214-219.

Mead M 1963, *Sex and Temperament in Three Primitive Societies*. Dell, New York. pp 186-187.

Miall CE 1987, The stigma of adoptive parent status: perceptions of community attitudes towards adoption and the experience of informal social sanctioning. *Fam Relat* 36: 34-39.

Morelli GA, Rogoff B, Oppenheim D, Goldsmith D 1992, Cultural variation in infant's sleeping arrangements: questions of independence. *Dev Psychol* 28: 604-613.

Musey VC, Collins DC, Musey PI, Martino-Salzman D, Preedy JR 1987, Long-term effect of a first pregnancy on the secretion of prolactin. *N Engl J Med* 316: 229-234.

Nemba K 1994, Induced lactation: a study of 37 non-puerperal mothers. *J Trop Pediatr* 40: 240-242.

NMAA 1998, *Relactation and Adoptive Breastfeeding*. Nursing Mothers' Association of Australia, East Malvern.

Obermeyer CM, Castle S 1997, Back to nature? Historical and cross-cultural perspectives on barriers to optimal breastfeeding. *Med Anthropol* 17: 39-63.

Pinilla T, Birch LL 1993, Help me make it through the night: behavioral entrainment of breast-fed infants' sleep patterns. *Pediatrics* 91: 436-444.

Peterson DS 1994, *Breastfeeding the Adopted Baby*. Corona Publishing Company, San Antonio.

Popkin BM, Bilsborrow RE, Akin JS 1982, Breast-feeding patterns in low-income countries. *Science* 218: 1088-1093.

Quandt SA 1986, Patterns of variation in breast-feeding behaviors. *Soc Sci Med* 23: 445-453.

Quandt SA 1995, Sociocultural aspects of the lactation process. In Stuart-Macadam P, Dettwyler KA (eds). *Breastfeeding: Biocultural Perspectives*. Aldine de Gruyter, New York. pp 127-143.

Raj VK, Pilchta SB 1998, The role of social support in breastfeeding promotion: a literature review. *J Hum Lact* 14: 41-45.

Raphael D, Davis F 1985, *Only Mothers Know: Patterns of Infant Feeding in Traditional Cultures*. Greenwood Press, London.

Renfrew M, Fischer C, Arms S 1990, *Bestfeeding: Getting Breastfeeding Right for You*. Celestial Arts, Berkley. pp 107-108.

Riordan J 1999, Anatomy and physiology. In Riordan J, Auerbach K (eds) *Breastfeeding and Human Lactation* 2nd edition. Jones and Bartlett Publishers, Toronto. pp 93-119.

Riordan J, Auerbach KG 1999a, Women's health and breastfeeding. In Riordan J, Auerbach K (eds). *Breastfeeding and Human Lactation* 2nd edition. Jones and Bartlett Publishers, Toronto. pp 541-576.

Riordan J, Auerbach KG, 1999b, The breastfeeding process: the postpartum period. In Riordan J, Auerbach K (eds). *Breastfeeding and Human Lactation* 2nd edition. Jones and Bartlett Publishers, Toronto. pp 311-340.

Schafer E, Vogel MK, Viegas S, Hausafus C 1998, Volunteer peer counsellors increase breastfeeding duration among rural low-income women. *Birth* 25: 101-106.

Shann F, Biddulph J 1983, *Paediatrics for Doctors in Papua New Guinea*, Rotary Club of Waverley, NSW.

Slome C 1956, Non-puerperal lactation in grandmothers. *J Pediatr* 49: 550-552.

Stern JM, Reichlin S 1990, Prolactin circadian rhythm persists throughout lactation in women. *Neuroendocrinology* 51: 31-37.

Thearle MJ, Weissenberger R 1984, Induced lactation in adoptive mothers. *Aust N Z J Obstet Gynaecol* 24: 283-287.

Thorley V 1997, Relactation and induced lactation: what the exceptions can tell us. *Birth Issues* 6: 24-29.

Uvnas-Moberg K, Eriksson M 1996, Breastfeeding: physiological, endocrine and behavioural adaptations caused by oxytocin and local neurogenic activity in the nipple and mammary gland. *Acta Paediatr* 85: 525-530.

Van Esterik P 1988, The insufficient milk syndrome: biological epidemic or cultural construction? In Whelehan P (ed) *Women and Health: Cross-cultural Perspectives*. Bergin and Garvey, Boston. pp 97-109.

Van Esterik P 1995, The politics of breastfeeding: an advocacy perspective. In Stuart-Macadam P, Dettwyler KA (eds). *Breastfeeding: Biocultural Perspectives*. Aldine de Gruyter, New York. pp. 145-165.

Van Gulden H, Bartels-Rabb LM 1999, *Real Parents, Real Children: Parenting the Adopted Child*. Crossroads Publishing Company, New York.

Victoria CG, Barros FC, Olinto MTA, Weiderpass E 1997, Pacifier use and short breastfeeding duration: cause, consequence or coincidence? *Pediatrics* 99: 445-449.

Vis HS, Hennart PH 1978, Decline in breastfeeding: about some of its causes. *Acta Paediatr Belg* 31: 195-206.

Wieschhoff HA 1940, Artificial stimulation of lactation in primitive cultures. *Bull Hist Med* 8: 1403-1415.

Wiessinger D 1996, Watch your language. *J Hum Lact* 12: 1-4.

World Health Organisation 1998, *Relactation: Review of Experience and Recommendations for Practice*. World Health Organisation, Geneva.

Acknowledgements

The author would like to thank the following researchers for kindly discussing their studies in relation to this paper: Dr CR Banapurmath, Dr E Hormann, Dr BB Lakhkar, Dr V Livingstone, Dr OA Makanjuola, Dr K Nemba and Dr MJ Thearle.

About the author

Karleen Gribble is an Adjunct Research Fellow in the School of Nursing, Family and Community Health at the University of Western Sydney. Her research interests focus on adoptive breastfeeding, particularly on breastfeeding of older adopted children and the contribution of breastfeeding to the development of secure attachment in adopted children. She is mother to two children – one biological and one adopted from China, both breastfed.

Correspondence to:

Dr Karleen D Gribble
School of Nursing, Family and Community Health
College of Social and Health Sciences
Paramatta Campus
University of Western Sydney
Locked Bag 1797
Penrith South Distribution Centre NSW 1787

Lactation Courses/Seminars/Conferences/Examinations

International Board of Lactation Consultant Examiners, Inc. (IBLCE)
Examinations held on last Monday of July each year; applications close at end of April.
Enquiries: IBLCE Regional Administrator
PO Box 13, South Hobart, TAS 7004
Ph (03) 6223 8445 Fax (03) 6223 8665

ALC (Australasian Lactation Courses)
The Science and Management of Breastfeeding
2 April 2004 Adelaide
$140 (inc GST)
Support for Breastfeeding & Trial Exam, Preparation and Revision
9 July 2004 Adelaide
$140 (inc GST)
Enquiries: Jen Byrne/Ellen McIntyre
Ph (08) 8271 8740 or (08) 8391 0527
Email: jen_byrne2000@hotmail.com or mcintyreae@bigpond.com
Website: www.users.bigpond.com/mcintyreae/alc.htm

BreastEd Online Lactation Studies
Enquiries: Denise Fisher 07 3263 8127
Email: admin@health-e-learning.com
Website: www.health-e-learning.com

Australian Breastfeeding Association – Lactation Resource Centre
Independent study modules
Breastfeeding: Science and Experience
Prof Jane Morton, Pamela Morrison, Cathy Fetherston, Anne Gethin, Beth McGregor
1-7 May 2004
Enquiries: LRC (03) 9885 0855
Email: lrc@breastfeeding.asn.au

CAPERS Breastfeeding Seminars
Breastfeeding: An Incredible Gift
One-day conferences with Jack Newman, Lisa Amir, Howard Chilton and Fiona Giles
4-8 May 2004
Jan Cornfoot (07) 5442 9145
jan@capersbookstore.com

ALMA Seminars
Enquiries: Maureen Minchin
Ph/Fax (03) 5221 2021
Email: almapubs@netlink.com.au

Allergy and Infant feeding
15 May 2004 St. Kilda, Vic
$90
IBCLC Exam Preparation
26-27 June 2004 Royal Women's Hospital, Carlton, Vic
$140 (early bird discount)
Learn from the Experts: Babies Food and Health with Robyn Noble
16 October 2004 Royal Women's Hospital, Carlton, Vic
Ph/Fax (03) 5221 2021 Mobile 0402 242 178
mminchin@optusnet.com.au

APLES Seminars
Enquiries: Mary Lantry (02) 9807 3021
or Angela Smith (02) 9981 1972

Bayside Breastfeeding Clinic
Breastfeeding Management and IBLCE exam preparation workshops
Ph/Fax Robyn Noble (07) 3396 9718

Tasmanian Lactation Consultants
One-day seminars or antenatal breastfeeding workshops
Enquiries: Sue Cox
Ph (03) 6243 0000
Fax (03) 6243 1555
Email: scox@trump.net.au

Certificate in Management of Lactation and Infant Feeding
Enquiries: Professor Lesley Barclay
University of Technology
Centre for Graduate Nursing Studies
St Leonards Campus
PO Box 123, Broadway, NSW 2007

Australian Lactation Consultants Association International Conference
7th Biennial Conference
Breastfeeding – The Link to a Healthy Future
18-22 September 2004 Crowne Plaza, Paramatta, Sydney
Julianne Reay Ph (02) 9621 2804
juliannere@optusnet.com.au
www.alca.asn.au

Australian Breastfeeding Association International Conference
August/September 2005 Hobart, Tasmania
Enquiries: Penny Archer Ph (03) 6224 3773
Website: www.cdesign.com.au/aba2005

18th World Conference on Health Promotion and Health Education
16-30 April 2004 Melbourne
www.health2004.com.au

IBCLC exam prep seminar
May 2004 Brisbane
June 2004 Melbourne
Jan Cornfoot (07) 5442 9145
jan@capersbookstore.com

College of Lactation Consultants
19 June 2004 Victoria
Janice Keirnan (03) 9537 2710
jkeirnan@portphillip.vic.gov.au

Australian College of Midwives
Midwifery Great Expectations
31 August-3 September 2004
Hyatt Regency, Perth
www.acmi.org.au/perth2004