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### Amy Brown

Amy Brown is Associate Professor in Public Health at Swansea University. Her research explores the factors that influence whether infants are breast or formula fed and when and how they are introduced to solid foods. In particular her work examines how complex psychological, societal and cultural factors can affect maternal experiences at this time. She will be investigating the influence of these factors and why they matter for infant feeding decisions in her forthcoming book 'Breastfeeding Uncovered: who really decides how we feed our babies,' to be published by Pinter & Martin.

## Milk supply and breastfeeding decisions: the effects of new mothers' experiences

Amy Brown explores the psychosocial and cultural issues around breastfeeding and their impact on the physiology of breastfeeding

In the UK significant numbers of mothers stop breastfeeding in the early weeks, typically before they are ready, commonly citing poor milk supply. This review considers how the physiological issue of poor milk supply can often be explained by psychological, social and cultural factors rather than biological impediment. It unpicks how, whilst biological inability to breastfeed should affect a very small minority of women, considerable numbers of new mothers report insufficient breastmilk supply, ultimately leading to a decision to stop breastfeeding.

This article aims to provide an overview of:

- how breast milk supply is established;
- the difference between primary physiological inability to breastfeed and poor milk supply as a result of feeding experience;



- the layers of psychological, social, and cultural factors that affect milk supply and hence infant feeding decisions; and
- messages for breastfeeding support.

## Breastfeeding in the UK

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Increasing breastfeeding rates is a strategic priority for health, economic and environmental reasons.<sup>1</sup> However, although breastfeeding initiation in the UK is rising slowly, continuation rates are still low, with only half of infants breastfed at all by six weeks and only 15% of babies exclusively breastfed by three months.<sup>2</sup> The majority of mothers who stop within the first six weeks intended to breastfeed for longer, with many distressed by their decision to stop.<sup>3</sup>

Although reasons for breastfeeding cessation are complex, a common reason given for deciding to stop breastfeeding is a perception of insufficient milk supply.<sup>4</sup> Understanding this disparity is critical in supporting new mothers to reach their breastfeeding goals.

## Is breast milk insufficiency common?

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Biological contraindications to breastfeeding can lead to low or absent breast milk supply. These include hypoplastic breasts (where the mammary tissue does not develop), medical disorders such as thyroid dysfunction and in some cases breast augmentation or reduction. Some medications and medical procedures are also contraindicated with breastfeeding, but there is usually an alternative that can be used. Other medications can reduce supply.<sup>5</sup> Other maternal or infant health issues can make it more difficult to breastfeed but should not have a direct impact upon milk supply itself.

However, together these medical contraindications, alongside infant and maternal factors that truly prevent breastfeeding, affect a negligible proportion of new mothers.<sup>6</sup> The vast majority of women when given the right environment and support to breastfeed should produce sufficient breastmilk. However, comparatively in the UK and many other Western countries, a significantly higher proportion of mothers stop breastfeeding stating that they can't breastfeed, often due to a perception of poor milk supply.<sup>4</sup> An examination of the literature illustrates that this disparity can predominantly be explained by psychological, social and cultural factors that interfere with a mother's physiological ability to produce enough milk, even though physiologically she should be able to. Understanding these barriers is key to breaking them down.

## How breastfeeding works

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For most women without a contraindication for breastfeeding, if the baby is latched on effectively and breastfed responsively following infant cues, then sufficient breast milk should be produced. Feeds will not typically be at set intervals or for set periods of time and most breastfeeding mothers notice that their baby's feeding pattern varies over the course of the day or week.<sup>7</sup> Attempting to alter this natural feeding pattern by lengthening the time between feeds, or feeding at a time set by the mother, not the infant, will signal to the mother's body that less milk is needed, and she will produce less.<sup>8</sup> Indeed mothers who attempt to breastfeed to a routine, or stretch out

feeds, are more likely to stop breastfeeding,<sup>9</sup> often due to perceived breast milk insufficiency.<sup>10</sup>

It is also important not to replace these breastfeeds with formula milk during the early weeks when milk supply is being established. If breast milk is not taken often, supply will decrease. Mothers who supplement with formula, particularly in the early days, are less likely to continue breastfeeding.<sup>11</sup>

This is often the point where breastfeeding is damaged, as many babies in Western cultures are not breastfed truly on-demand. Rather than infant hunger cues, a multitude of environmental factors determine when, where and how often a baby is breastfed, and whether they receive additional formula milk. Psychological, social and cultural factors combine leading to feeds being stretched out or delayed, or formula given instead, often with little knowledge that this can affect milk supply. Thus although the majority of women should physiologically be able to breastfeed, their experiences may lead them to breastfeed their baby in a way that means ultimately they cannot breastfeed. Understanding what these experiences are and how they affect breastfeeding is key to promoting the knowledge, confidence – and indeed resilience - that new mothers need to successfully breastfeed.

## Understanding the wider influences on breastfeeding

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Our behaviour is affected by many factors. Models of human behaviour such as the ‘theory of planned behaviour’ demonstrate how, despite our intentions, our own beliefs about ourselves, and the beliefs and behaviours of others, can affect how we behave.<sup>12</sup> The culture in which we live also affects our behaviour. The ‘ecological systems model’ illustrates how layers of psychological, social and cultural factors inform normal behaviour and our ability to act.<sup>13</sup>

These factors can explain why, although many women intend to breastfeed, continuation rates are low. Some of these factors may be direct e.g. a partner telling a mother they do not want her to breastfeed. Others may indirectly erode a woman’s ability to breastfeed by damaging on-demand breastfeeding and, in turn, milk supply. The mother may either lengthen the time between breastfeeds or give additional formula milk, both of which will affect milk supply.

## Psychological factors

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How a mother feels psychologically can impact upon her milk supply. Physiologically, high levels of stress hormones can inhibit oxytocin, which plays a critical role in milk production. Neurotransmitters such as serotonin and dopamine, which are often reduced during depression, are also linked to oxytocin production.<sup>14</sup> However, links between a mother’s psychology and milk supply typically follow non-physiological pathways. How a mother feels about herself in ways such as knowledge, confidence and body image can affect whether she feeds responsively and, in turn, milk supply.

### 1. Knowledge of how breastfeeding works

Knowledge of how breastfeeding works and the need for on-demand, frequent breastfeeding is low in the UK, in part due to the common use

of formula.<sup>15</sup> The majority of mothers in the UK use formula milk at some point, with over half giving some formula by the end of the first week.<sup>2</sup> Understanding what it is like to breastfeed and how this differs from formula feeding can therefore be very poor.

Without understanding normal breastfeeding patterns, mothers may compare their infant to a formula fed baby and believe either that they are overfeeding their baby or that they do not have enough milk.<sup>16</sup> Formula feeding usually involves feeds of a certain size being given at set time points, often three or four hours apart as formula milk takes longer to digest.<sup>17</sup> Formula fed babies feed faster with fewer pauses.<sup>18</sup> If the only experience a mother and those around her have is of formula feeding then she may believe her baby is feeding too often, potentially because she has insufficient milk. She may stretch out feeds, resulting in an unsettled baby, or believe that she should give formula in addition.<sup>11</sup>

Breastfeeding mothers may also compare the growth patterns of formula and breastfed infants and conclude that their infant is not getting enough milk. Although patterns of growth are similar in the first few months, at around four months, formula fed babies on average start to gain weight at a fast rate than breastfed infants.<sup>19</sup> However, this difference in weight is often perceived as the breastfed infant being underweight rather than the formula fed infant being overweight. This difference, combined with considerable pressure during the first year to have a baby who gains weight quickly, can also lead mothers to believe that their infant is not getting sufficient milk and give additional formula.<sup>20</sup>

## 2. Confidence and anxiety

Confidence directly predicts both starting and continuing breastfeeding.<sup>11</sup> Low confidence and/or high anxiety increase the risk that a mother perceives the normal patterns of breastfeeding as 'wrong', increasing her concerns about milk supply. She may offer a bottle 'just in case', which the infant accepts, strengthening a mother's belief that they were hungry. The easily visible and measured nature of formula use may also offer her comfort.

Moreover, low confidence and/or high anxiety may make a mother's breastfeeding experience more challenging. She may feel more awkward breastfeeding in front of others, and more influenced by criticisms or offers to give a bottle.<sup>21</sup> She may respond by stretching the time between feeds or giving formula in order to avoid feeding in front of others or facing criticism.<sup>11</sup>

## 3. Depression and anxiety

The relationship between mental health and breastfeeding is complex. Some studies show that exclusive breastfeeding is protective of wellbeing<sup>22</sup> and mothers who plan to breastfeed but do not are at greater risk of PND.<sup>23</sup> However, other studies suggest that breastfeeding, particularly if challenging for some mothers, can increase the risk of postnatal depression (PND).<sup>24</sup>

Alternatively, mothers with PND may find breastfeeding (or parenting in general) more challenging and decide to stop. For example, PND has been associated with lower confidence and greater anxiety which may make the baby-led nature of breastfeeding more difficult. Not responding to or recognising infant cues may decrease milk supply. Exhaustion or needing someone else to care for the baby may also increase formula use.<sup>25</sup>

## 4. Weight and body image

Mothers who are overweight or obese are less likely to breastfeed.<sup>26</sup> Obesity can reduce milk supply<sup>27</sup> but often the association between weight and breastfeeding is psychological. Obese mothers are more likely to feel self-conscious breastfeeding and may delay breastfeeds or use a bottle in front of others. This can also apply to women who are not overweight but have poor body image.<sup>28</sup>

Maternal eating style also affects breastfeeding. Mothers who are more restrained in their diet are less likely to breastfeed because they believe that this will help them to lose weight.<sup>29</sup> They may also prefer to feed a baby to a timed routine because they are concerned about overfeeding.<sup>30</sup>

## Social factors

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The attitudes, beliefs and behaviours of other people can strongly influence a mother's ability to breastfeed. Psychologically, mothers who are supported are more likely to feel confident about both breastfeeding and wider factors such as body image. Importantly, being surrounded by those who are supportive and knowledgeable about normal patterns of breastfeeding will increase her chances of breastfeeding on-demand.

### Partner

A supportive partner is a significant predictor of breastfeeding.<sup>31</sup> However, not all men have a positive attitude, sometimes because they see it as impeding their relationship with the baby or their partner, interpreting breastfeeding as either time wasting or sexual. The mother may compromise by allowing the father to give a bottle or for the baby to have an overnight visit to a grandparent. She may delay feeds or use formula milk in public. Conversely men may be supportive of breastfeeding but see their partner tired, distressed or in pain and want to help by giving a bottle.<sup>32</sup>

### Family and peers

One of the biggest predictors of whether a mother decides to breastfeed is whether she was breastfed herself. She is more likely to experience positive attitudes towards breastfeeding; those around her will understand how breastfeeding works and are more likely to be skilled in supporting her in a way that protects breastfeeding.<sup>33</sup>

Of course families can be supportive even without the experience of breastfeeding, but may not be equipped to support a new mother facing difficulties. If formula feeding is normal to them, they may perceive breastfeeding patterns as abnormal. They may want to 'solve' pain or exhaustion with a bottle, and offer to give a feed or have the infant overnight.<sup>34</sup>

Conversely, families can also discourage breastfeeding through criticism. They may perceive the mother's decision to breastfeed as judgmental which can lead to sabotage: a bottle being offered, pressure not to breastfeed in public or a suggestion that she does not have enough milk.<sup>35</sup>

### Health professionals

Positive support from professionals who are informed and encouraging about breastfeeding plays a significant role in promoting breastfeeding.<sup>36</sup> However, many women report that they cannot get sufficient or accurate information.<sup>16</sup>



This can be a resource issue; midwives and health visitors pressurized to provide care for many women may have no time to sit with a woman needing support. Ensuring that the infant is fed becomes the priority, and mothers are advised to use formula rather than take time to solve breastfeeding difficulties. Poor support with latching the infant on may lead to pain and poor milk consumption, increasing concerns about milk supply.<sup>37</sup> Weight concerns may lead to formula top-ups being suggested.<sup>38</sup>

### **Broader cultural factors**

The wider cultural views of the country and area that women live in also influence breastfeeding. These can include public opinion about breastfeeding as well as attitudes towards the position of mothers in society. Industry and politics can also play a role.

### **Societal beliefs towards breastfeeding in public**

Around a third of the UK public believes that mothers should not breastfeed in public.<sup>39</sup> Many mothers become affected by, or are anxious about, hearing negative comments when breastfeeding in public.<sup>40</sup> Consequently, less than two thirds of breastfeeding mothers do so in public.<sup>2</sup> A woman who feels self-conscious breastfeeding in public may be more likely to cut a feed short or accept a poor latch, use a bottle or delay feeds.

### **Views on infant care and mothering**

Views on infant behaviour in Western culture often promote the idea that infants should sleep through the night and be settled during the day. Formula milk is often believed to promote sleep for both baby and mother, despite evidence to the contrary,<sup>41 2</sup> Indeed, a number of popular baby care books encourage mothers to establish their infant in a sleeping and feeding routine that promotes independence from the infant and are at odds with baby-led breastfeeding. However, strict infant sleep and feeding routines are associated with stopping breastfeeding,<sup>43</sup> probably because ignoring or missing feeding cues damages milk supply.

Considerable pressure is also placed on new mothers to regain their pre-baby lifestyle through socializing, returning to work or losing their baby weight. Breastfeeding and its irregular patterns may be seen as an obstacle and mothers may attempt to delay feeds or give formula in order to settle the infant or be away for longer.<sup>11</sup>

## **Childbirth**

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Promoting and supporting normal birth is a priority for many reasons related to the health and wellbeing of both mother and baby<sup>44</sup> as well as to protect breastfeeding. Interventions during childbirth are associated with shorter breastfeeding duration for both physiological and behavioural reasons.<sup>45</sup>

Infants who have had a forceps or ventouse-assisted delivery may be in pain, and medications used during emergency caesareans can cause infants to be sedated at birth and reluctant to latch.<sup>46</sup> Epidural analgesia is associated with perceived poor milk supply, whilst opioids are associated with infant breathing difficulties, increased sedation and poorer suckling behaviour. Oxytocin, given to induce or augment labour, is also associated with poorer infant sucking.<sup>47</sup> Similarly, giving oxytocin during the third stage can reduce

subsequent natural prolactin and oxytocin, and is associated with a greater risk of breastfeeding difficulties.<sup>48</sup> Residual pain and mobility post birth can be distressing or cause difficulty in lifting the infant.<sup>49</sup>

Complications during the birth may also cause mother and baby to be separated post birth and prevent skin-to-skin contact, delaying milk production.<sup>50</sup> Psychological consequences should not be underestimated: the mother who has lost confidence in her ability to birth may feel she is unable to breastfeed.<sup>51</sup> Coupled with a delay in milk production, she may doubt she has enough breast milk. Well-meaning family members may offer to 'just give one bottle so you can have some sleep', or professionals may insist a baby receives formula, further complicating issues.<sup>52</sup>

## Industry

Although it is illegal to promote formula milk intended for babies under six months old,<sup>53</sup> the formula industry uses a number of techniques to appeal to mothers. A common technique is the concept of follow-on formula: milk for older infants that is advertised using the same brand name, colours and designs, knowing that subtle messages are promoted or parents misconceive the advert. Adverts promote the perceived health, practical or emotional benefits of follow-on milk. Other techniques include helplines for pregnant and new mothers, sponsoring healthcare events and offering training and branded free gifts to healthcare professionals.<sup>54</sup> These techniques can lead to deliberately blurred messages that formula milk for younger infants will solve breastfeeding problems or is superior or equal to breastfeeding.<sup>55</sup>

## Politics

Politics can affect infant feeding decisions, directly through the support and promotion of breastfeeding by governments, or more subtly through wider policy decisions surrounding benefits, work and family life. The UK government's public health policy encourages mothers to follow World Health Organisation guidelines. However, there are inadequate resources for breastfeeding support: health professionals are pressed for time and peer support programmes are underfunded. More subtly, cancellation of initiatives that underpin and validate the need for breastfeeding support, such as the National Infant Feeding Survey (and Breastfeeding Awareness week in Wales), undermines the value placed on breastfeeding.

Wider government decisions around benefits, work and families also affect breastfeeding, including, in recent years, reductions in benefits to new families which have encouraged more mothers back to work. Although maternity pay, benefits and law offers greater protection for mothers in the UK than in the US, financial pressures can mean an early return to work. Shorter maternity leave is associated with reduced breastfeeding duration,<sup>56</sup> particularly in jobs that do not provide mothers with the opportunity to breastfeed or to express milk without embarrassment.<sup>57</sup> Typically, this affects women in lower paid roles; finding a break and privacy is more difficult for an hourly-paid sales assistant job than for a mother with flexible hours and a private office space. Other mothers may not even initiate breastfeeding out of concern that their baby may refuse to take a bottle at a later date.<sup>58</sup>

Mothers may be disproportionately affected by benefits cuts. A strong relationship exists between poverty and formula use:<sup>59</sup> the pressure of



poverty itself can reduce breastfeeding and responsive feeding and may cause mothers to take on additional work involving long and inflexible hours. Poverty is associated with poorer wellbeing such as increased anxiety and depression, lower confidence and poorer social relationships.<sup>60</sup> A mother may worry that she is not eating a nutritious enough diet to breastfeed.<sup>61</sup> Although breastfeeding is free and should be a useful resource for those in poverty, formula may appear to relieve some of the pressures, at least temporarily.<sup>62</sup>

## Summary and conclusion

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This review has examined how although less than 2% of new mothers may be physiologically unable to breastfeed, the breastfeeding experiences of many mothers in the UK ultimately damage milk supply. It highlights how environmental influences – psychological, social and cultural – can strongly influence the physiology of breast milk supply by exerting pressure on new mothers to resist feeding their infant on-demand or to offer additional formula. This damages breast milk supply, leaving many new mothers unable to breastfeed.

Understanding the impact that complex psychological, social and cultural factors have upon breastfeeding decisions is crucial to providing useful knowledge and support to new mothers. Although breastfeeding counsellors and supporters may not be able to change many of these factors, understanding the effect of these issues upon the physiology of milk supply is vital in influencing what support the new mother receives. Knowledge of how breastfeeding works, and the confidence to trust in this, is at the heart of this relationship and therefore enhancing maternal knowledge and confidence, self-efficacy and resilience, is central to overcoming the challenges that may prevent a mother from breastfeeding on-demand.

There needs to be additional investment in ensuring that society understands how breastfeeding works. This of course includes giving the mother enhanced antenatal support, highlighting the importance of baby-led breastfeeding and the barriers that can prevent this. However, this knowledge also needs to extend to those around the mother, such as the father and grandparents. Enabling these individuals to support and protect the mother and baby-led breastfeeding will likely enhance a mother's chances of breastfeeding on-demand.

On a wider level, we need to continue to tackle cultural barriers to breastfeeding. Society needs to understand the importance of baby-led breastfeeding, not only for the health and wellbeing of the mother and baby, but also for the wider economic and environmental benefits to us all. Until new mothers are really supported and encouraged to breastfeed without restrictions, breastfeeding rates will remain low.

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