Methods and Success Factors of Induced Lactation: A Scoping Review

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Abstract

Background: Induced lactation enables a woman who has not given birth to breastfeed a child. Lactation may be induced through both pharmacological and non-pharmacological methods, although the desired outcome cannot always be achieved.

Research Aims: The aims of this scoping review was to assess the different methods used to induce lactation, as well as the factors related to sucking the breast effectively and the production of human milk.

Methods: We searched five databases from June 2019–February 2020 for studies referring to methods and factors related to breast sucking and/or the volume of milk produced after inducing lactation, using the following search terms and Boolean operators: breastfeeding AND induced lactation AND adoptive mothers OR surrogate mothers OR female homosexuality OR non-gestating. The final review included a total of 24 articles.

Results: Pharmacological methods were not always used to produce milk, although breast stimulation was essential. The age of the child, interference due to bottle feeding, breast stimulation, and the support received were important factors in the induction of lactation. There were several factors that may account for the differences between developing and higher income countries in methods of induced lactation and the amount of milk that study participants produced. There was no consensus over whether previous pregnancy and/or breastfeeding experience influenced induced lactation.

Conclusion: Health professionals need to have adequate knowledge about induction methods, the preferences of each woman, and the reasons for inducing lactation, to provide proper assistance. However, the lack of standardization about induction of lactation makes it difficult.

Keywords

breastfeeding, galactogogues, hormones, induced lactation

Background

There are two stages in milk production that are related to hormonal processes during pregnancy and upon delivery. During pregnancy, estrogens stimulate the proliferation and differentiation of mammary glands and ducts, while progesterone causes the growth of lobes and alveoli and inhibits lactation. At the time of the birth, a rapid fall in the levels of these hormones disinhibits prolactin secretion, the increase in which triggers milk secretion. Suckling by the newborn helps to maintain lactation and is accompanied by the production of oxytocin, which causes contraction of the mammary epithelium and the ejection of milk (Truchet & Honvo-Houéto, 2017).

Induced lactation is the process whereby a woman who has not recently been pregnant or who is not nursing another child produces milk (Sriraman, 2017). If they have previously breastfed, it is termed relactation (World Health Organization [WHO], 1998). The main reasons why women induce lactation is to develop closeness between mother and child and/or to satisfy the child’s nutritional needs. The
reasons and methods for inducing lactation vary in different countries (Rahim et al., 2017).

Difference in the duration of breastfeeding between developing and higher income countries may be due to the different reasons why lactation is induced: ensuring the child’s survival through the provision of human milk prior to introducing other foods, in developing countries, as opposed to strengthening the closeness between mother and child in high income settings (Gribble, 2007; Ogunlesi et al., 2008).

Adoption is historically known as the legal process to achieve parenthood without delivery. The growth and development of assisted reproduction techniques have allowed other options of motherhood, including surrogacy or pregnancy in a female same-sex couple (Gürtin et al., 2018). These new family structures have increased in recent years, thereby increasing rates of breastfeeding due to lactation being induced (Schnell, 2015), although women who adopt a child, who have a child through surrogacy, or who are the non-pregnant partners in a lesbian couple, may be able to breastfeed. However, it has been reported that many of these new family structures have found a lack of support during the process from nurses and physicians (Chuisano & Anderson, 2019).

Providing all women who wish to breastfeed with adequate support and advice should be a priority for health professionals and would contribute to better health in both the woman and child, with increased rates of breastfeeding (Kornides & Kitsantas, 2013; Chetwynd et al., 2019). We define breastfeeding for the child as the consumption of human milk including expressed milk and milk from a wet nurse and other food or liquid (Noel-Weiss et al., 2012).

Despite the increased desire for induced lactation, many health professionals do not have precise knowledge about induced lactation and may feel insecure when faced with a request for advice. The aim of this scoping review was to assess the different methods used to induce lactation, as well as the factors related to sucking the breast effectively and the production of human milk.

Methods

Design

We conducted a scoping review, which allows researchers to identify knowledge gaps, scope a body of literature, and clarify concepts (Munn et al., 2018). We have followed the five stage-process proposed by Pham et al. (2014), based on Arksey and O’Malley (2005): (1) identify the research question; (2) identify relevant studies; (3) study selection; and (4) collate, summarize, and report the results.

Sample

Articles were selected if they contained information about the methods used to induce lactation, and the factors associated with sucking the breast effectively and the volume of milk produced after inducing lactation. Inclusion criteria were: (1) articles with information about the methods used to induce lactation; (2) articles with information about the factors associated with sucking the breast effectively and/or the volume of milk produced after inducing lactation; (3) English or Spanish language articles; and (4) due to the relevance of studies published in the 1980s, we decided to include studies published during the last 39 years. Exclusion criteria were: (1) nonclinical studies; (2) non-human studies; (3) reports not written in either English or Spanish; (3) letters; (4) protocols; (5) reviews; and (6) clinical guidelines. The sample selection process is explained in Figure 1. The total sample was 24 articles.

Data Collection

The literature search was conducted from June 2019–February 2020 by the first author, using the following databases: Pubmed, Web of Science Cumulative Index to Nursing and Alice Health Literature (CINAHL), JSTOR, and Psycinfo. The following search terms and Boolean operators were used: Breastfeeding (under alternative spellings e.g., breast feeding and breast-feeding) AND induced lactation AND adoptive mothers OR surrogate mothers OR female homosexuality OR non-gestating. Two authors read the 98 abstracts to determine if the articles met the inclusion criteria. From September–October 2019 They then carefully read the selected articles to extract data on methods and success factors in induced lactation.

Data Analysis

We drew up a table in order to classify the 24 articles according to the following variables: (1) first author and year of publication; (2) context of induced lactation; (3) study design; (4) country in which the study was conducted; (5) number of participants (and their characteristics); (6) methods of induction of lactation; and (7) main contributions to and factors associated with sucking the breast effectively

Key Messages

- Stimulation is essential to induce breastfeeding despite the use or not of pharmacological methods; however, no consensus exists regarding what methods should be used to continue breastfeeding.
- No standardized approach for women who decide to undergo induced lactation exists.
- Factors associated with the success of induced lactation are the age of the child, interference due to bottle feeding, breast stimulation, and the support received.

Figure 1. Sample selection process.
and/or the volume of milk produced after inducing lactation.

The first author extracted data from each selected article. The context of induction refers to whether induction occurred in case of adoption, surrogacy, or in lesbian couples. The methods used could be pharmacological: hormonal treatment or galactagogues (including herbal galactagogues), or non-pharmacological stimulation (manual or mechanical stimulation or with at-breast suckling supported by a supplemental nursing system). In the results section of the studies we extracted the factors associated with suckling the breast effectively and/or the volume of milk produced after an induced lactation (if there was a reference in the article).

Results

A summary of variables extracted from each article is detailed in Table 1. These included demographic variables (e.g., country where the study was done, year of publication); study methods (e.g., design, sample size); and the outcome variables of interest for this review (e.g., method of induction, effectiveness of milk production) that are discussed below.

Methods for Inducing Lactation

Lactation may be induced through non-pharmacological methods (i.e., manual stimulation of the breasts, the use of breast pumps, or suckling by the child) or pharmacologically, via the administration of hormones (progesterone and estrogen) and/or galactagogues.

Non-Pharmacological Methods

In the study by Abejide et al. (1997), Nigerian women (N = 6) produced enough milk to feed their adopted child with breast stimulation alone. All participants had previously breastfed, between 9 months and 2 years prior to beginning the induction. In all cases, lactation was initiated by suckling the child at least 10 times each day for at least 10 min on each breast. These participants began to produce milk 13–18 days after initiating suckling, and after 21–28 days, the breastfeeding was exclusive in all cases. Gribble (2005)
| First Author (year) | Context | Design | Country | Sample (N) | Method of induction | Type of BF | Main contributions/learning points |
|---------------------|---------|--------|---------|------------|---------------------|------------|-----------------------------------|
| LeCain et al. (2020) | Surrogacy | Case report | UK | Woman aged 37 with CAIS No pregnancy or BF | HT, G, S | Mixed BF | It was the first case of induced lactation with hormonal treatment through estrogen only, without progesterone. |
| Cazorla-Ortiz et al. (2020) | Adoption | Qualitative descriptive | Spain | Women (N = 9) aged 28–38 Previous BF (n = 2) | HT, G, S | EBF, 6 Mixed BF | The age of the children at the start of BF was from birth to 12 weeks. The age of the children at BF cessation was from 1.5 months to 4 years. |
| McGuire (2020) | Lesbian couple | Case report | Australia | Woman aged 39 Previous pregnancy and BF | HT, G, S | EBF, not weaned at 13 months | BF was an important aspect of mothering. Possibility of sharing BF in a same sex couple inducing BF. Support received from lactation support providers in the hospital during the process of inducing lactation. |
| Reisman and Goldstein (2018) | Lesbian couple | Case report | USA | Transgender woman aged 30 No pregnancy or BF | HT, G, S | 6 weeks EBF, not weaning at 6 months | First case of induced lactation in a transgender woman. Hormone levels were measured in each clinic visit. |
| Flores-Arón et al. (2017) | Adoption | Case report | Spain | Woman aged 37 Previous second-trimester miscarriage No previous BF | G, S | EBF for 2 years | First case of a woman who became a milk donor following induced lactation. Main reason for inducing lactation was to establish bond with the child. Importance of motivation and confidence, support of family and professional guidance. |
| Farhadi and Philip (2017) | Surrogacy | Case report | Iran | Woman aged 23 Mother of twins 30 weeks old GA | G, S | Mixed BF | Importance of support from the husband, family, and lactation support provider. Many fears and challenges. |
| Zinger et al. (2017) | Surrogacy | Case report | Brazil | Woman aged 39 Previous pregnancy and BF | G, S | Mixed BF for 4 weeks | BF established bond between mother and child even if milk production was not sufficient. No change in prolactin levels. The mother's satisfaction and the importance of sharing the experience were key. Consider whether the success of induced lactation was EBF or simply producing any milk. |
| Wilson et al. (2015) | Adoption | Case report | USA | Women (N = 2) aged 38 and 46 No previous pregnancy or BF | HT, G, S | Mixed BF for 7 months | Importance of individualized counseling that took into account different family configurations. |
| Da Rocha et al. (2014) | Adoption | Qualitative descriptive | Brazil | Women (N = 3) aged 36–40 No previous pregnancy or BF | G, IO, S, SNS | Mixed BF from 4–23 months | BF linked to maternity. There was a relationship between BF and the closeness felt between mother and child. |
| Wahlert and Fießer (2013) | Lesbian couple Ethics case study | USA | The non-pregnant partner had no previous pregnancy or BF | G, S | N/A | The risks associated with the medication used to induce lactation were outweighed by the benefits of BF. The primary benefits of induced lactation were emotional rather than nutritional. |
| Szucs et al. (2010) | Adoption | Case report | USA | Woman aged 33 Previous pregnancy that did not reach term No previous BF | HT, G, S, SNS | EBF for 2 months | The mother's milk was a medicinal product. More research needed on G and HT. There was a lack of protocols about induced lactation. Importance of training for professionals. The main objective of lactation induction was to feel a full mother. |
| Shiva et al. (2010) | Surrogacy | Case report | Iran | Woman aged 36 Two ectopic pregnancies, two miscarriages No previous BF | G, S | Mixed BF for 3 months | Importance of counseling from clinicians and nurses and support from the partner and family. Emotional and psychological factors could have a positive influence on prolactin and oxytocin secretion. The main objective of induced lactation was to establish an emotional bond. |
| Hawke et al. (2005) | Adoption | Case report | New Zealand | Woman aged 40 No previous pregnancy or BF | G, IO, S, SNS | Mixed BF for 7 months | Moments of frustration at lack of results. Uncertainty over the amount of milk produced. |
| Gribble (2005) | Adoption | Case report | Australia | Cases (N = 5) Adopted children aged 8 months to 5 years No previous BF (n = 1) | S | Mixed BF but not all BF | Suckling at the breast provided comfort and stress relief, although there was no BF. |
| Kirkman and Kirkman (2001) | Surrogacy | Case report | Australia | Woman aged 41 No previous pregnancy or BF | S, SNS | Mixed BF for 10 months | Support from the immediate environment was important for the success of induced lactation. |

(Continued)
Table 1. Continued

| First Author (year) | Context | Design | Country | Sample (N) | Method of induction | Type of BF | Main contributions/ |
|---------------------|---------|--------|---------|------------|---------------------|------------|---------------------|
| Gribble (2001)      | Adoption| Descriptive online survey | Australia | Women (N = 170) from the USA, CA, AU, NZ, and PRC | Not referring | Not referring | The support group helped cope with feeling alone and enabled them to share their experiences and to normalize the situation. |
| Biervliet et al. (2001) | Surrogacy | Case report | UK | Woman aged 27 | G, S | Mixed BF for 3 months | The option of induced lactation should be made available to all women who had a child through surrogacy. |
| Lakkar (2000) | Adoption | Descriptive | India | Women (N = 12) aged 35-45 | G, S | 11 mixed BF, one EBF | The reasons for not BF: Women described the experience of BF as one of the best they had had. Motivation and family support were the most important success factors. |
| Cheales-Siebenaler (1999) | Adoption | Case report | USA | Woman aged 34 | G, IO, S | EBF for 2.5 months, Mixed BF for 4.5 months | Weight gain, fatigue, and breast pain were the reasons for stopping BF. Lactation support providers should empowering adoptive mothers. |
| Abejide et al. (1997) | Adoption | Case report | Nigeria | Women (N = 6) aged 22–56 All had previous pregnancies and BF | S | EBF from 4—10 months | BF is crucial to the survival of children. Induced lactation was culturally accepted. |
| Namba (1994) | Adoption | Case report | Papua New Guinea | Women (N = 37) aged 19–55 25 had had previous pregnancies and BF (n = 25) | No previous BF: HT, G, S | EBF 24 ≥ 9 months (n = 24) | No differences between previous or no previous BF. Importance of motivation, psychological preparation, family, and professional support. |
| Banapurmath et al. (1993) | Surrogacy | Case report | India | Women (N = 10) aged 25–45 All had had previous pregnancies and BF | G, S | EBF 2 years (n = 2) | Bottle feeding was an obstacle for sucking at the breast. Induction of lactation was related to the attachment between mother and child. The success of induced lactation was related to the possibility of BF, milk produced. |
| Thearl and Weissenberger (1984) | Adoption | Case report | Australia | Women (N = 6) aged 32–34 No previous pregnancy, 1 previous BF | Three women: HT, S, SNS | Mixed BF 5 weeks to 1 year | BF was described as a pleasurable experience. Induction of lactation was related to the attachment between mother and child. Importance of professional support. |
| Auerbach and Avery (1981) | Adoption | Descriptive | USA | Women (N = 240) Mage = 27 Previous pregnancy (n = 65), previous BF (n = 36) | Maternal dietary supplementation: increased fluid intake S; SNS (n = 137) | Mixed BF ≥ 7 months | Previous BF was related to longer duration of BF after induced lactation and less supplements. The main reason for inducing lactation was to strengthen attachment between mother and child. Children older than 8 weeks had more difficulty sucking. Not achieving EBF did not affect the experience of induced lactation. |

Note. Main contributions included factors related to suckling effectively at the breast and/or the amount of milk produced. USA = United States of America; UK = United Kingdom; CAIS = Complete Androgen Insensitivity Syndrome; HT = hormonal treatment; G = Galactagogues; IO = intranasal oxytocin; S = stimulation; SNS = supplemental nursing system; BF = breastfeeding; EBF = exclusive breastfeeding; mixed BF = BF and formula; hx = history.
described five cases of adopted children from 8 months to 5 years old who expressed desire to suckle, by looking for their adoptive mother’s breast. In three of the five cases (60%) breastfeeding was achieved with only breast stimulation by suckling.

**Pharmacological Methods**

**Combined Treatment with Hormones.** The aim of combined treatment with estrogen and progesterone is to produce a state like pregnancy in women. Hormones cause changes in the mammary tissue, but impede lactation, and the treatment must be stopped at least 24–48 hr prior to beginning breast stimulation (Thearle & Weissenberger, 1984). Study participants began to take combination hormones 2.5–5 months before beginning breast stimulation; it was maintained for 6–10 weeks (Szucs et al., 2010; Wilson et al., 2015). In the study by Nemba (1994) the method used depended on whether the participants had previously breastfed a child. Those who had not were given an intramuscular injection of 100 mg of medroxyprogesterone 1 week prior to breast stimulation, and chlorpromazine 25 mg/4 times per day until lactation was well established. Participants who had previously breastfed were given either chlorpromazine, 25 mg/4 times a day, or metoclopramide, 10mg/4 times a day, until lactation was well established. Both groups stimulated the breasts through frequent suckling by the child. In the study by Thearle and Weissenberger (1984), the induction method varied depending on whether or not participants had a history of lactation. All women used a breast pump for stimulation, but three women (50%) who had not previously breastfed also were administered 2.5–40 mg of non-androgenic progesterone and between 0.05–0.4 mg of estrogen 12–28 weeks prior to beginning stimulation. In the case report (N = 2) by Wilson et al. (2015), 3 months before the baby’s due date one of the participants (A) began taking drospirenone/ethinylestradiol, 3 mg/0.03 mg for 8 weeks. After the last dose she began pumping a minimum of 15 min 4 times a day, as well as drinking fenugreek tea. She also started taking domperidone during this period. The first drops of milk appeared on the 12th day of pumping, after which her production increased to a maximum of 64 ml/day.

Starting 2.5 months before their baby’s due date, Participant B took ethynodiol diacetate/ethinylestradiol, 1 mg/35 mcg for 6 weeks. On the 3rd week of birth control, she initiated domperidone, and on the 5th week, she began drinking the same herbal tea with fenugreek and taking two malunggay (moringa oleifera, a tree leaf used as a galactagogue) pills 3 times a day (Wilson et al., 2015).

After stopping the hormones, she pumped for a minimum of 15 min, 4–5 times per day. The first drops appeared 2 days after beginning stimulation, and her production reached a maximum of 26 ml/day. In the study by Cazorla-Ortiz et al. (2020), five (55.5%) of the nine participants, took progesterone and estrogen to induce lactation in addition to galactagogues and stimulation of the breasts.

**Intranasal Oxytocin.** Da Rocha et al. (2014) reported on three women who breastfed their adopted child. One of them (33.3%) used oxytocin (in addition to alfalfa and cinnamon tea) to encourage lactation. Oxytocin nasal spray was also used (just prior to stimulation with a breast pump and sucking by the child) by the two women in the case reports by, respectively, Hawke et al. (2005) and Cheales-Siebenaler (1999). Finally, in the study by Auerbach and Avery (1981), 14 (6%) of the 240 participants used intranasal oxytocin, together with breast stimulation, for 2 weeks after the child’s arrival. In this group, it was often reported that milk production was more likely if the oxytocin nasal spray was used in combination with breast stimulation.

**Galactagogues.** The drug most widely used in the studies reviewed was metoclopramide, a dopamine antagonist. Doses ranged from 20–80 mg per day, and a low dose (5 mg/day) could be maintained while breastfeeding; alternatively, some women stopped taking metoclopramide after a period of between 10 days and 2 months (Banapurmath et al., 1993; Lakhkar, 2000; Biervliet et al., 2001; Shiva et al., 2010; Farhadi & Philip, 2017). In some cases, dopamine was used (dose 30–120 mg/day), either around Week 20 of the pregnancy or after the child was born (Hawke et al., 2005; Szucs et al., 2010; Reisman & Goldstein, 2018; LeCain et al., 2020; McGuire, 2020). In the study by Zingler et al. (2017) and in the case report by Cheales-Siebenaler (1999), women stopped taking metoclopramide because of similar side effects: fatigue, weight gain, and emotional lability.

Herbal supplements with a galactagogue effect are sometimes used in combination with breast stimulation either with or without additional galactagogue or hormone treatment. An adoptive mother of twins took 1220–1830 mg of fenugreek and 340–1020 mg of blessed thistle (Szucs et al., 2010). One (33.3%) of the three participants combined breast stimulation with alfalfa, cinnamon tea, and an oxytocin nasal spray (Da Rocha et al., 2014). All participants included in this study combined stimulation with herbal galactagogues (Cazorla-Ortiz et al., 2020). In the case report about a mother whose baby was born through surrogacy with complete androgen insensitivity syndrome (CAIS), “the participant whose baby was born through surrogacy with complete androgen insensitivity syndrome (CAIS), “the participant also took fenugreek and milk thistle as herbal supplements” (LeCain et al., 2020).

**Factors Associated With Suckling the Breast Effectively and/or the Volume of Milk After an Induced Lactation**

Successful induced lactation could be defined as achieving milk secretion, even if the quantity produced is insufficient for the exclusive breastfeeding of the child (Banapurmath et al., 1993; Shiva et al., 2010; LeCain et al., 2020). In this
respect, success was more related to the mother’s satisfaction and her sense of self-realization than to the amount of milk produced or the duration of breastfeeding (Cazorla-Ortiz et al., 2020; Cheales-Siebenaler, 1999; Zingler et al., 2017).

Factors Associated With the Mother’s Satisfaction

Support/Encouragement by Health Personnel, Partner, Family and Friends. One of the main factors associated with the success of induced lactation was the support and encouragement the participants received during the process from health professionals. Health professionals played a key role in providing information, advising, and counseling women who had not been pregnant regarding the different methods to breastfeed their children. It was important to consider the woman’s priorities and the particular family configuration Szucs et al., 2010; Wilson et al., 2015; Cazorla-Ortiz et al., 2020). This kind of support could be offered by an International Board Certified Lactation Consultants (Biervliet et al., 2001; Cazorla-Ortiz et al., 2020; Farhadi & Philip, 2017; Flores-Antón et al., 2017). In the report by Kirkman and Kirkman (2001) concerning a case of surrogate motherhood between two sisters, the support the sisters offered one another was what enabled them to continue with the induction process, despite the difficulties they encountered along the way. Gribble (2001) described an online support group for breastfeeding adoptive mothers. This resource helped participants to cope with feeling alone and provided both information and support through the sharing of experiences of induced lactation. Participants felt the process to be normal and socially acceptable, which was essential for a successful outcome. According to Nemba (1994), the mother who was motivated, confident in herself, and who was well-informed about the induction process, was more likely to achieve a successful outcome. In the study by Cazorla-Ortiz et al. (2020), participants felt that women who were breastfeeding without going through a process of induced lactation had more support than those who were breastfeeding after going through a process induced lactation.

Frequent Stimulation. Each breast had to be stimulated for 10–20 min, 4–10 times a day (including at night), and this could be done manually or by using a breast pump, or both (Banapurmath et al., 1993; Cazorla-Ortiz et al., 2020; Flores-Antón et al., 2017; LeCain et al., 2020; McGuire, 2018; Reisman & Goldstein, 2018; Szucs et al., 2010; Wilson et al., 2015). In the study by Lakhkar (2000), four (33.3%) of the 12 participants who began the process of induced lactation did not produce milk. It was suggested that this was due to a lack of motivation and insufficient breast stimulation. Although, in the study by Nemba (1994), some of the participants (N = 37) received pharmacological treatment during the induction process, one of the key factors in achieving high levels of prolactin and oxytocin was breast stimulation. In the cases of adoptive breastfeeding (N = 240) reported by Auerbach and Avery (1981), the most important factor in inducing lactation was nipple massage and stimulation, either by the child suckling or through use of a breast pump. Wilson et al. (2015) noted that breast stimulation could also be achieved when using a supplemental nursing system (SNS), in this case a bottle with a neonatal nasogastric tube was placed beside the mother’s nipple that enabled the child to feed while simultaneously stimulating the breast; a bottle of this sort might contain formula, donor milk, or milk previously expressed by the mother herself (Banapurmath et al., 1993).

Previous Pregnancy and/or Breastfeeding. In the study by Auerbach and Avery (1981) of adoptive mothers (N = 240), participants who had previously breastfed produced milk more quickly than did those with no history of lactation. In the recent case report by Mcguire (2020), the woman who induced lactation had had a previous pregnancy and lactation and achieved exclusive breastfeeding. In the study by Cazorla-Ortiz et al. (2020) two participants achieved exclusive breastfeeding without a previous pregnancy or breastfeeding, while the other two participants in the same study had previously breastfed but did not achieve exclusive breastfeeding.

Factors Associated With the Child

Child’s Age. Auerbach and Avery (1981) reported that “three fourths of the babies less than 8 weeks of age responded well to the opportunity to nurse. Infants 8 weeks of age or older were as likely to accept as to reject the breast” (p. 342). Lakhkar (2000) likewise found that success was more likely the younger the child and the earlier that breastfeeding was initiated. However, Gribble (2005) described five cases of adopted children ranging from 8 months to 5 years old, who breastfed.

Interference Due to Bottle Feeding. The 10 children in the study by Banapurmath et al. (1993) were fed with formula until the mothers produced enough milk. Four of the children (40%) who had been bottle fed subsequently had problems taking to the breast; it was necessary to discontinue bottle feeding in order to achieve adequate suckling. In the event that formula or donor milk was needed as a supplement, this was given through a cup or spoon so as not to interfere with the child’s suckling (Banapurmath et al., 1993; Nemba, 1994; Abejide et al., 1997).

Duration of Breastfeeding Following Induced Lactation

The longest reported cases of breastfeeding following induced lactation corresponded to middle- and high-income countries: mothers breastfed from 1 month to 4 years.
developing countries, mothers breastfed their children 4–12 months.

Discussion

There are several factors that may account for the differences between developing and higher income countries in methods of induced lactation and the amount of milk that mothers produce. Mothers in developing countries are generally more knowledgeable about breastfeeding, breastfeed more frequently, maintain close physical contact with their child, whose behavior they consequently learn to interpret, and have a history of breastfeeding that may also make it easier. They also live in a culture that is supportive of breastfeeding, not least as it is seen as crucial to children’s survival, given the risks of infection associated with the preparation of formulas. As a result of the latter, there is also less interference due to bottle feeding or the use of dummies (Gribble, 2004).

Indeed, there is currently a tendency in the West to regard breastfeeding as a symbol of maternal identity (Schmied & Lupton, 2001). The “good” mother is one who breastfeeds her child, as by doing so she is seeking the best, both for her child and with regard to her own self-realization as a mother (Marshall et al., 2007; Lommen et al., 2015). The new family structures which are the result of same sex couples and the rise of assisted reproduction have led to an increase of induced lactation in both these situations; the maternity in same sex couples and in surrogacy (Imaz, 2017). Induction of lactation will gain importance and more studies about this process will be necessary.

Previous experience of breastfeeding appears to be an important, although not crucial, factor to achieve breastfeeding and expectations with regard to her own self-realization as a mother (Marshall et al., 2007; Lommen et al., 2015). The new family structures which are the result of same sex couples and the rise of assisted reproduction have led to an increase of induced lactation in both these situations; the maternity in same sex couples and in surrogacy (Imaz, 2017). Induction of lactation will gain importance and more studies about this process will be necessary.

The main limitation of the studies reviewed was the lack of current studies about induction of lactation. Most of the articles were case reports, which do not produce enough evidence to generalize results or build an evidence base. Additionally, most of the case reports were about induction of lactation in adoption. Further research is required to increase knowledge about methods of inducing lactation in non-pregnant women, the circumstances in which one method may be better than another, the possible side effects of galactagogues, and the factors associated with a successful outcome.

Limitations

One of the limitations of this review is that the studies reviewed are in English or Spanish, which limits the usability of the results. In addition, inclusion criteria limited articles with information about the methods used to induced lactation and the factors associated with sucking the breast effectively and/or the amount of milk after an induction of lactation. Considering that the cases of induced lactation will increase, future studies should compare the different methods and the different side effects of the drugs used to induce lactation, therefore more articles analyzing this effect are necessary. In the same way, not all the articles selected in the review refer to the factors related to sucking the breast effectively and/or the amount of milk after an induction of lactation. Considering that the cases of induced lactation will increase, future studies should compare the different methods and the different factors related to the success of the induction of lactation and how to determine which are the most appropriate in each case.

Conclusion

Health professionals can use this review to learn more about the process of induced lactation. Raising awareness and offering women the help and advice they need, taking into account their particular family situation, is essential. Guidance of this kind can empower women and allow them
to experience the emotional and nutritional benefits of breastfeeding.

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