

Maternal Satisfaction With Parallel Pumping Technique

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Pumping is a necessary practice for many families and due to the time-intensive nature, optimal techniques are in high demand. The objective of this study was to assess the experiences and feelings of women who utilized the parallel pumping technique. Three phone interviews were conducted with all participants who met the inclusion criteria. Participants in this study favored the parallel pumping technique over the triple-feeding technique and felt it streamlined their feeding routine. Future studies should focus on identifying if the parallel pumping technique quantifiably increases production of mothers' milk.

Keywords: human milk; breast milk expression; personal satisfaction; lactation

Background

Breastfeeding is the optimal way to feed infants and results in health and economic benefits for both families and society at large, including reductions in child and maternal deaths (Victora et al., 2016). The World Health Organization's (WHO) recommendation to exclusively breastfeed for 6 months is for "optimal growth, development and health . . . protection from common childhood illnesses [and] longer-term health benefits for the mother and child, such as reducing the risk of overweight and obesity in childhood and adolescence" (WHO, 2018).

There is, however, a disconnect between the WHO recommendation to breastfeed for at least 6 months, and the actual number of people still breastfeeding at 6 months, which is approximately 57.6% (Centers for Disease Control and Prevention, 2018). Many people are faced with difficulties that lead to early cessation of breastfeeding, such as perceived or actual insufficient milk supply and latch problems (Lewallen et al., 2006). Odom et al. (2013) found that "approximately 60 percent of mothers who stopped breastfeeding did so earlier than desired." Li, Fein, Chen, and Grummer-Strawn (2008) identified that fears around adequate supply were steadily the top concern of all 1,323 respondents to their questionnaire. Labiner-Wolfe, Fein, Shealy, and Wang (2008) demonstrated that mothers often need or want to pump so they can work or have another person feed the baby.

In the first week of life, triple feeding is often one of the first recommendations a breastfeeding parent receives from care providers (e.g., pediatricians, IBCLCs) to increase milk supply or provide breast milk supplement for slow weight gain or jaundice treatment. Triple feeding consists of direct breastfeeding, bilateral pumping, and infant supplementation (e.g., bottle or other alternative device) (Lincoln Pediatrics Group, 2018). Simplifying the lengthy process of triple feeding may result in longer duration of breastfeeding and higher maternal satisfaction with the process.

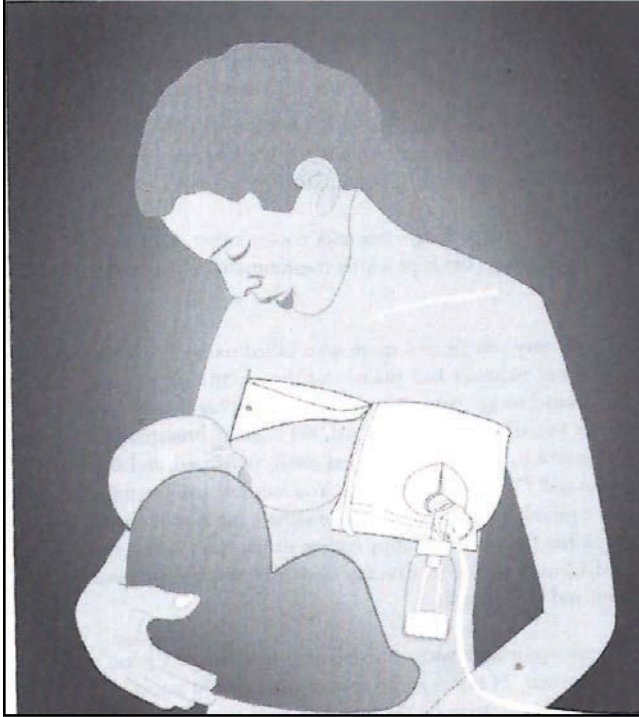
Frequent and effective removal of milk is required to maintain milk production and the continued release of prolactin from the pituitary (Wambach & Riordan, 2015). The purpose of triple feeding is to ensure adequate weight gain through supplementation while maintaining breast stimulation, especially in mothers who are experiencing a delay in lactogenesis II or have infants that are not transferring milk effectively. Rasmussen and Geraghty (2011, p. 1356) identified that 85% of mothers have "successfully expressed milk at some time since their infant was born."

In practice, as an attempt to lower the time commitment of triple feeding, the frequency of direct latching is reduced. Rasmussen and Geraghty (2011) also note families that feed "only pumped milk . . . will cease trying to feed their infants at the breast." Adams and Hewell (1997) noted, "new mothers evaluate breastfeeding based upon their somatic experience rather than the observation of infant behavior." Knowing that mothers are not just relying on infant cues but also paying attention to how the entire experience feels, it is important to make the pumping experience one that is feasible and satisfactory.

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Figure 1. An illustration of the parallel pumping technique.



Source: McCue, K. (2011). *Start here: Breastfeeding and infant care with humor and common sense*. Copyright 2011 by Erin McCue.

For purposes of this study, we are defining/coining parallel pumping as using a rental-grade/multiuser breast pump on one breast while simultaneously nursing a baby on the other breast. The use of a rental-grade/multiuser breast pump is preferred to personal use pumps/insurance-given pumps due to the higher suction and efficiency in assisting with early lactation. This technique has been anecdotally recommended over the years, but no formal studies have been conducted on its feasibility and satisfaction (Walker, personal communication, September 1, 2018). Most participants chose the football position to accomplish this while using a hands-free pumping bra to hold the flange in place on the opposite breast. By utilizing this process, participants could cut down on the time needed for each feeding and mothers could continue direct breastfeeding while pumping, to provide breast milk for supplementation.

Parallel pumping provides bilateral stimulation with the critical distinction of also providing skin-to-skin contact between mother and infant. This also provides the ability for the parent to respond to her infant rather than the pump, which has been shown to provide a different hormonal response versus simply using a pump

(Zinamen, Queenan, Labbok, Albertson, & Hughes, 1992). The authors theorize that parallel pumping will increase the oxytocin reflex as well as increase the prolactin levels to assist in increasing milk supply, with the goal of sustaining exclusive feeding at the breast.

This study was conducted in response to overwhelming anecdotal evidence in the authors' clinical setting that the parallel pumping regimen was preferred and as effective as triple feeding. Many of the patients in the practice were released from the hospital on the triple-feeding protocol and reported that they did not find it sustainable, which led to early cessation of breastfeeding. After observing this for years, the research project was undertaken to measure satisfaction with the parallel pumping technique.

By assessing satisfaction with the parallel pumping technique, clinical practices can be updated and contribute to the increased duration of breastfeeding. Future research can also focus on a quantitative review of increased breast milk supply due to the process, as well as a comparison study of triple feeding and parallel pumping that assesses breastfeeding outcomes.

Method

The Institutional Review Board of Maryville University in St. Louis, Missouri, approved the study. All participants were recruited from a lactation practice in a major U.S. metropolitan area that serves 1,000 families a year. This practice is overseen by a doctorally prepared family nurse practitioner/IBCLC and supported by a team of 16 additional IBCLCs.

Procedures

An informed consent form, including a description of the study, was prepared for each participant. Each participant was asked to participate in three telephone interviews, which were audio-recorded and transcribed verbatim. The interviews were conducted by one interviewer for consistency. The interviewer is an IBCLC and had not treated or met the participants before the interviews. At the beginning of the first interview, a demographic form was verbalized to the participant, and her verbal responses were recorded on paper. An interview guide was used to gather data during the first interview, which took place within 3 days of the initial consultation.

The second interview occurred approximately 1–2 weeks after the first interview. An interview guide was used

for this interview. The third interview occurred approximately 1 month after the second interview. During data analysis, each participant was contacted once via telephone to validate the study findings (member checking). This phone contact was also digitally recorded and transcribed verbatim. This technique of sharing findings is critical to allow the participants to validate and/or refute the researcher's understanding (Thomas, 2006). At this step, respondents can improve the accuracy, validity, authenticity, and transferability of the research. The anticipated total time required for participating in this study was 2 hours. After each of the three interviews, field notes were audio-recorded and transcribed verbatim.

Measures Table

Interview questions were developed in conjunction with a well-known researcher, Dr. Shawn Pohlman of Maryville University. These interviews consisted of five questions asking the participant to describe her current feeding routine and her feelings about the routine, including specific questions around the parallel pumping technique and future intentions for feeding of additional children.

Data Analysis

The experiences of the participants were examined utilizing interpretive description methods. As Thorne, Kirkham Reimer, and O'Flynn-Magee (2004) state,

“interpretive description provides direction in the creation of an interpretive account that is generated by informed questioning, using techniques of reflective, critical examination, and which will ultimately guide and inform disciplinary thought in some manner.” This specific methodology was applied to assist with the formation of conceptual interpretations of the raw data collected over the breadth of the interviews by reviewing direct statements and examining the common themes that emerged.

Results

The participant group consisted of 10 female participants meeting the following inclusion criteria: English-speaking, over the age of 19 years, currently on a triple-feeding protocol and planning to use parallel pumping, singleton birth, and mother of a healthy baby between birth and 8 weeks of age. The first 10 women fitting the criteria (in order of how they presented to the center for lactation consultations) were initially approached for participation. Participants are identified in Table 1 and were primarily utilizing the triple-feeding protocol to increase their milk supply and providing supplemental breast milk to their infants to increase weight gain. Thirteen women participated in the interviews, with three dropping out after the initial demographic interview because of breastfeeding cessation (unrelated to the pumping protocol). Thirty interviews, representing 10 participants who completed the entire study cycle,

Table 1. Demographics of Participants

Age	Race	First Child	Marital status	Currently Employed?
		Y/N		
37	White, non-Hispanic	Y	Married	Y
38	African American	N	Married	Y
38	White, non-Hispanic	Y	Married	Y
36	White, non-Hispanic	N	Married	Y
31	White, non-Hispanic	Y	Married	Y
35	Indian	Y	Married	N
33	White, non-Hispanic	Y	Married	Y
33	White, non-Hispanic	Y	Married	Y
39	White, non-Hispanic	Y	Married	Y
35	White, non-Hispanic	N	Married	Y

were reviewed for common themes and satisfaction with the parallel pumping technique.

Throughout the interviews, several main themes emerged regarding the overall satisfaction with the parallel pumping technique, as well as the benefits and downsides. Of note, all 10 participants stated that they would utilize the parallel pumping technique with future children.

Time management was mentioned several times, both in conjunction with the previous triple-feeding regimen and the parallel pumping regimen:

- “[Triple-feeding] . . . takes so long. I pick her up to feed her and it’s maybe an hour to an hour and a half before I can put her down again.”
- “When [parallel pumping] worked out it gives you more time and that was really nice.”
- “I was able to sit there and nurse him and also pump so that my husband can do the next feeding, which was fabulous.”
- “I felt a sense of accomplishment the first time I did it: ‘Okay, look at this. It’s working really well.’ She got into the football hold. I was able to pump, and it did feel like it was maximizing time.”
- “Once you get the mechanics down it felt good in a way to feel like you were being efficient, like an efficient use of time.”
- “I feel like I’m getting the pumping done simultaneously. Because I’m only pumping one breast at a time I can have one clean flanged waiting . . . for next round. It actually takes a little bit of pressure off of me and I feel like I’m getting more done.”
- “It is just efficient, because if my daughter only wanted to nurse from one side then normally what I would do is that I would feed her and then get her down sleeping, and then pump the other side. So, if I could just pump while she was nursing, it’s more efficient that way. That was nice not to have to then, after I get her down, then sit down and have to pump for another 15 minutes.”

Another benefit noted from participants was their ability to feel more engaged with their infant during feeding time as opposed to only using a pump.

- “It is really nice to see when he is nursing to see him as an active participate, if that makes sense. Sort of

the bonding and eye contact . . . he’ll grab my finger when he’s nursing, things like that, so that’s really sweet.”

- “I feel good about this new get-up because I feel like he may not need the comfort nurse now if he’s able to nurse from me during this time.”

One participant noted a benefit to her: “I like that I can see what coming out, so I have an idea of what he’s taking in on the other side.” As all the participants were previously utilizing the triple-feeding regimen, they were all acutely aware of the need to produce sufficient volumes each feeding for their infants.

Many participants discussed the mechanics of parallel pumping, both as something that necessitated practice, as well as the sustainability of continuing it in various settings.

- “Once you get [it] the first time it’s pretty easy.”
- “Just getting the right holds down in a comfortable way is kind of challenging. But I really love it and it’s been going well so far, overall.”
- “Where I struggle is that I feel like it’s a two-man operation right now. I think, maybe I just need a little bit more practice, but it’s getting the baby in the right position, getting the pump set up on the one breast, and kind of doing two things at once.”

When discussing the overall feasibility of continuing the parallel pumping routine, most participants were unanimous in agreeing that it was most useful in the early days when focusing on increasing both milk supply and weight gain for their infant: that is, a time-limited approach. However, the authors feel this attitude toward feasibility is comparable to the triple-feeding regimen, which is also intended to be a short-term solution.

- “It’s not really feasible in all aspects of the day; like if I have to go out or something, I can’t.”
- “The goal is that this is a short-term solution to him actually being confident on the breast, getting what he needs, and my supply increases and he gets stronger with latching and sucking. That this is going to help us in the future.”
- “[This is feasible only] while I’m home. It’s not going to work for me if I have to go to an appointment and it’s not going to work for me once I go back to work, because then I won’t have the baby with me.”

Conclusion

The study identified that the parallel pumping technique, while requiring an adjustment period, is preferred to the triple-feeding protocol to streamline the process of breastfeeding, pumping, and supplementing infants. Participants reported feeling closer to their infants and appreciating the ability to have time at the breast, even if supplementation was also required after each feeding. By offering an alternative to the demanding triple-feeding protocol, clinicians may be able to increase satisfaction and encourage increased breastfeeding duration.

There are some limitations to this study that the authors would like to highlight. The participants were primarily upper-middle-class White women and between ages 30 and 40. While the authors believe the responses were reflective of a wide variety of opinions, additional diversification of participants would be helpful to capture a wider range of responses. While anecdotal evidence demonstrated an increase in milk supply, this has not been compared to triple feeding rigorously. Finally, the small sample size is a limitation of the study. While interviews were conducted until the sample size was achieved, future studies could focus on a larger group of participants for increased data.

In clinical situations where the goal is to increase milk supply by frequent removal via pumping as well as providing breast milk supplementation for the infant, parallel pumping is a viable and preferred alternative to the triple-feeding regimen often recommended, as reported by the participants in this study.

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AHRQ Perspectives on Maternal Safety

The Agency for Healthcare Research and Quality has released an article titled “Maternal Safety” as part of its *Perspectives on Safety series*. The perspective examines the decline in maternal health outcomes in the United States and summarizes recent national initiatives to improve safety in maternity care. The article emphasizes the importance of engaging with community stakeholders when addressing maternal health and taking a broad approach to understanding how bias, discrimination, community relations, and public policy affect maternal safety: <https://psnet.ahrq.gov/perspectives/perspective/262>

Source: USBC