

“What Is ‘Enough,’ and How Do I Make It?”: A Qualitative Examination of Questions Mothers Ask on Social Media About Pumping and Providing an Adequate Amount of Milk for Their Infants

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Abstract

Background: Mothers commonly cite an inadequate milk “supply” as a reason for stopping human milk feeding. Further, pumping may affect mothers’ understanding of their milk production. We aimed to characterize the questions mothers ask each other online related to the adequacy of the milk they pumped and provided to their infants.

Materials and Methods: We conducted a secondary analysis of 543 posts containing questions related to pumping on an online discussion forum. These posts were provided by an open cohort of ~25,000 women between 1 month before due date and 4.5 months postpartum. We used thematic analysis with Atlas.ti to analyze the posts.

Results: Mothers commonly asked how many ounces they should be pumping and inquired about strategies to increase their pump output. They also wondered how many ounces or bottles of pumped milk they should provide to their infants or store for future use. Finally, mothers reported the inadequacy of the milk they were pumping or providing to their infants as potential reasons for stopping human milk feeding.

Conclusion: Our findings suggest that mothers may benefit from additional guidance from health care providers on the limitations of using pumps to draw conclusions about their milk production, the current evidence related to the use of herbal galactagogues, and the importance of responsive infant feeding. These findings also highlight the need for future research into how pumping or using herbal galactagogues may affect mothers’ actual or perceived milk production and how styles for providing pumped milk compare to styles for feeding directly at the breast.

Keywords: breast milk, human milk, breastfeeding, infant feeding, milk expression

Introduction

MOST MOTHERS IN THE UNITED STATES now use pumps and bottles to provide their milk to their infants in place of some or all feeding at the breast.¹ As we have reported previously, in the absence of comprehensive evidence-based guidelines for pumping and providing pumped milk, many women turn to online sources to gather information about these practices.^{2,3}

It is important to understand the questions women ask about pumping and providing pumped milk because these practices may impact their perceived or actual milk production and, as a result, their long-term outcomes for providing human milk. For example, some women report that inter-

preting their output from pumps to gauge their purported milk “supply” caused or increased their concern about the adequacy of their milk production.⁴ This is troubling as women consistently cite perception of inadequate milk production as one of the top reasons to stop human milk feeding.⁵ Further, this may explain, in part, why higher pumping frequency⁶ and self-described “regular” pumping⁷ in the early postpartum period have been associated with shorter human milk feeding durations. However, to our knowledge, available data do not permit an investigation of how replacing or supplementing feeds at the breast with pumping sessions and/or bottle-feeds may affect women’s perceived or actual milk production.

An essential first step in understanding these potential relationships is to investigate women’s perceptions and

behaviors related to the adequacy of the milk that they pump and provide to their infants. In turn, this improved understanding will help to identify the information women need to meet their goals for providing their milk. Here, we report secondary findings from a qualitative analysis of women's questions about pumping on an online parenting discussion forum. The primary findings of this qualitative work, which included an exploration of five predetermined themes, are reported elsewhere.² The findings described here relate to a theme that emerged from this work: the questions women asked related to the adequacy of the milk they pumped and provided to their infants via bottles or cups.

Materials and Methods

We conducted a qualitative, longitudinal, and cross-sectional analysis of data provided by a cohort of women within an online discussion forum whose babies were due in April 2014. Our methods are described in more detail elsewhere.² Briefly, we identified and analyzed the questions women asked related to pumping their milk between 1 month before their due dates and 4.5 months postpartum on BabyCenter.com,⁸ one of the largest online forums related to pregnancy and parenting in the first year.

Data collection

The unit of analysis for this work was posts related to pumping and pumped milk on BabyCenter.com's April 2014 Birth Club. The posts were retrieved by entering keywords such as "pump," "pumping," and "expressing" into the search engine. We excluded posts that did not include questions ($n=21$), posts in which the question was not about pumping or providing pumped milk ($n=21$), and non-informative questions about pumping or providing milk, such as polls that asked about others' general opinions on these practices rather than a specific aspect of them ($n=11$). The sample of posts was publicly accessible, did not include any

identifying information, and was not considered to be human subjects research by the Cornell University Institutional Research Board.

Data analysis

Included posts were grouped according to five predetermined themes that were informed by our previous qualitative work and by findings from the Infant Feeding Practices Studies II, a recent national longitudinal cohort study.^{1,3,4,6,9-12} In each of these predetermined themes—(i) choosing and purchasing pumps, (ii) storing and preparing pumped milk, (iii) strategies for and difficulties with pumping, (iv) integrating pumping into work, and (v) stopping pumping—women posted questions related to the adequacy of the milk they pumped and provided to their infants. Because such posts were present across all themes and time intervals of interest, they were extracted from the pool of posts and analyzed as a unit. We used thematic analysis with open- and closed-coding in Atlas.ti (Berlin, Germany). Coding was discussed weekly by J.P.F. and R.Y. to verify accuracy. Quotes are reported by an infant age interval at the time of data collection.

Results

Women in the April 2014 Birth Club posted 543 eligible questions for analysis. We report the number and nature of questions women asked within the five predetermined themes elsewhere.² Here, we focus on the women's questions related to the adequacy of the milk that they pumped and provided to their infants via bottles or cups. Some of these questions are relayed verbatim below and summarized and paraphrased in Table 1. Because pumping milk and the provision of that milk to an infant are asynchronous behaviors, we report separately the questions related to pumping enough milk versus providing enough milk. We also describe the questions posed by

TABLE 1. WOMEN'S QUESTIONS ABOUT PUMPING AND PROVIDING AN ADEQUATE AMOUNT OF MILK FOR THEIR INFANTS

<i>Subtheme</i>	<i>Questions asked by women</i>
Pumping an adequate amount of milk	Which type or brand of pump provides strong suction? How often should I pump, and how many ounces should I be producing in each pumping session and/or overall? What are potential causes of a decrease in my pump output? What can I do to increase my output when I pump? What, if any, supplements (e.g., fenugreek or lactation cookies) are effective in increasing my output when I pump? What strategies can I use to make sure I am able to pump enough while I am at work?
Providing an adequate amount of pumped milk	How much pumped milk should I give to my baby (e.g., ounces per bottle or per day, bottles per day)? How many ounces or containers of pumped milk should I have stored before I return to work/school? When should I start building a stock of pumped milk so I have enough for when I return to work/school? Should I have a stock of pumped milk for emergencies? If so, how much?
Perception of insufficient pumping and the cessation of exclusive human milk feeding	Does the stress and/or fatigue of worrying about how much milk I am pumping and providing to my baby outweigh the benefits my baby is getting from my milk? Do small amounts of pumped milk provide worthwhile benefits compared to exclusive formula-feeding?

This table lists questions that are not direct quotes, but rather questions that have been paraphrased by the authors to represent information sought by women whose posts were analyzed.

mothers for whom adequacy-related concerns were potential reasons to stop pumping or providing their milk altogether.

Pumping an adequate amount of milk

In their questions about choosing pumps, women described a desire for pumps that were efficient and powerful enough to meet their infants' needs. For example, they asked for advice on which pump type and/or brand would produce enough milk to meet their infants' current or future needs: "I'm going back to school after pregnancy then work so I need a good breast pump most Likely a double pump which brand is best for suction and long lasting i want to breast feed for at least a year [*sic*]" (prenatal). For some women, the ability of pumps to produce enough milk was more important than the cost or the type of pumps.

I got a free [double electric pump] through insurance. It worked okay for a few days, but now the suction....sucks. I can sit for up to an hour and feel like I'm still full... Should I stick with [pump brand], but go with a different model (if there is one?)... I'm not worried about cost right now, I just want a good pump.

—0 to 1.5 months postpartum

One of the most commonly discussed topics in this sample was how much mothers should be pumping in each session, as measured in ounces, in a certain period of time, or overall: "How many times a day should I pump? ... How many ounces are typically produced while pumping? How do I know when to stop pumping? Do you wait for a bottle to fill? Pump for X amount of time?" (0–1.5 months postpartum). Mothers who perceived that they were not pumping enough milk asked if it was possible to increase their pump output or sought general strategies to do so.

I used to feed him and still be able to pump 5–6 ounces total afterward. Now my boobs hardly ever feel full, and when I pump I'm only getting about an ounce. I'm trying to figure out what's different that would cause the decrease...Am I not drinking enough water? Should I be pumping more often? Is he just eating more and draining my supply more than he used to? For any of you mamas who are [exclusively breastfeeding] and pumping, how often/when do you pump? And how much do you get each time?

—0 to 1.5 months postpartum

Others wanted feedback on specific strategies that were thought to maximize rates of milk production and total pump output, such as supplements or special diets: "Has anyone on here successfully been able to increase their milk supply with supplements like fenugreek or mommaid [momMaid™ Lactation Support Supplement] or with lactation cookies or teas?" (1.5–4.5 months postpartum). Some mothers noticed that they were pumping less milk after returning to work; these mothers asked what might be causing the decline in output and sought strategies to ensure that they were pumping enough while they were at work.

Is being upset about returning to work affecting the amount you pump? ... I don't think I'm eating enough now that I'm back at work. I'm also really missing [my baby]. I massage while I pump, look at [my baby's] pics and videos. Also, how do you handle meetings (both in and out office) and pumping?

I'm more worried about a few all day meetings I have off-site. Do you bring your pump with you?
—1.5 to 4.5 months postpartum

Providing an adequate amount of pumped milk

Some women wanted to set and meet goals for providing an adequate amount of pumped milk, for example, by determining the appropriate amount of milk per meal to feed to their infants. They also sought advice on how many and what size bottles to provide to their infants at home or to send to daycare.

I return to work as a teacher in a couple weeks and though I plan to pump at work and send that with [my baby] the next day, how much should I send on day 1? I really don't know how much she eats when she's at the breast. Also, how much is a decent amount in stockpile? I have roughly 300oz in the freezer but I have no idea if that's too little, too much or just right.

—1.5 to 4.5 months postpartum

Women also asked questions about how much milk to store to meet their infants' anticipated or unanticipated future needs. Some pumped to build an adequate stock before returning to work or school outside the home. They wondered when they should start pumping and how many storage bags or containers they should purchase ahead of time: "Should I start breast pumping before my baby comes or no? I start school again 2 weeks after his expected due date and I want to have milk for him while I'm gone. If I should start before he's born, how soon should I start and how should I store it?" (prenatal). Others asked questions about stocking enough milk to meet unknown future infant needs: "I have no milk at all stored up but lately I've been thinking maybe I should keep an emergency supply in case I get sick or something. What do you think? And how much do you think?" (1.5–4.5 months postpartum).

Perception of insufficient pumping and the cessation of exclusive human milk feeding

Mothers reported the inadequacy of their pumping sessions or the milk they provided to their infants as potential reasons for introducing formula or stopping feeding human milk altogether. Some mothers described the stress and fatigue associated with trying to meet their infants' needs with exclusive human milk feeding: "I love to breastfeed but im getting so annoyed with worrying about my supply, worrying about pumping, is She eating enough, not getting sleep at all im exhausted! I didn't want her on formula at all but this is just beginning to be too much for me! [*sic*]" (1.5–4.5 months postpartum). Others asked whether providing even small amounts of pumped milk was better than exclusive formula-feeding.

I've been pumping consistently since 3 weeks and only get about 3–4 oz a day. I do give this to my baby but now that she is over 4 months and starting to eat more I am losing motivation at how little breastmilk she is getting compared to formula. Is giving her such little breastmilk better than nothing? I am really not sure anymore.

—1.5 to 4.5 months postpartum

Thus, some mothers worried that they were not producing enough milk to meet their infants' needs or to be worth the effort, and wondered about introducing formula or stopping human milk feeding.

Discussion

The findings reported here provide an in-depth characterization of women's questions related to the adequacy of the milk that they provide to their infants via pumping and bottle- or cup-feeding. These findings are an extension of our previous work,² in which we used themes predetermined from the literature to examine the information women sought about pumping in an online discussion forum. The findings presented here raise a number of additional issues that must be investigated to optimize the benefits and minimize the potential risks that may be associated with replacing feeds at the breast with pumping sessions and bottle-feeds. Further, our results identify important areas in which health care providers can educate and support pumping mothers and caregivers who provide pumped milk.

Our findings underscore emerging concerns that substituting feeds at the breast with pumping sessions may increase the risk of stopping exclusive or all human milk feeding before recommended. The findings we report here and elsewhere⁴ suggest that women interpret the output from their pumping sessions to estimate a purported milk "supply" and, less often, their infants' needs. Our findings also echo recent data in suggesting that mothers interpret low pump output as a proxy for low "supply," that is, compromised milk production,^{4,13} and that this perception may increase the likelihood that they transition away from human milk feeding.¹³ However, experimental data indicate that output from pumps varies widely by pump quality and methods,¹⁴⁻¹⁶ and our previous qualitative work suggests that even the highest-quality pumps may be inferior to infants at emptying breasts.⁴ As a result, research is now needed about how different pumps and practices might affect mothers' actual and perceived milk production. Further, health care providers may be able to alleviate potential concerns and reduce the risk of early cessation of human milk feeding by counseling women about the limitations of using their pumping sessions and their infant's intake of pumped milk to understand their milk production.

Mothers' questions about taking supplements (e.g., fenugreek) or products that contain supplements (e.g., lactation tea) highlight the need for more information about the uses, benefits, and side effects of herbal galactagogues. Our findings reflect previous work¹⁷ indicating that mothers who are concerned about their milk production consider using herbal galactagogues and turn to the internet for information. However, there are insufficient data to determine either the efficacy of herbal galactagogues in increasing milk production or their safety for lactating mothers and human milk-fed infants.¹⁸⁻²² In addition, some herbal galactagogues may cause adverse side effects such as diarrhea.²⁰⁻²³ Yet, many mothers perceive herbal galactagogues as effective and safe based on anecdotal evidence.^{17,23} As a result, additional research is urgently needed to investigate the potential relationships between the use of herbal galactagogues and outcomes for mothers' milk production and for their health and that of their infants. In the meantime, health care providers should reference the clinical protocol set forth by the

Academy of Breastfeeding Medicine²² to address mothers' questions about taking supplements to increase their milk production.

Mothers' questions about how many ounces or bottles of milk to provide to their infants raise concerns that they and other caregivers may not be as responsive to infants' variable needs and cues when providing pumped milk via bottle or cup versus feeding directly at the breast. In our previous qualitative work,¹² we found that it was common for infants to be fed pumped milk on schedules and in consistent amounts, even when the same infants were fed on demand at the breast. These practices may more closely reflect formula-feeding practices, which are more caregiver-controlled than feeding at the breast.²⁴ These findings are of concern because bottle-feeding, regardless of bottle content, is associated with impaired self-regulation of intake¹⁰ and faster weight gain during the first year of life¹¹ compared to feeding at the breast. Taken together, both qualitative and quantitative data indicate that the impaired self-regulation and rapid growth exhibited by bottle-fed infants compared to their counterparts fed directly at the breast may be related to differences in feeding styles. As a result, the qualitative work reported here further highlights the need for quantitative data about styles for providing pumped milk to infants and their potential relationships to outcomes for infants' growth and development. Our findings also suggest that health care providers might help to mitigate potential risks to infants' growth and development by encouraging caregivers to feed their infants in a way that is responsive to their variable needs within a day and across the year.²⁵

This study has several limitations as reported previously.² The findings may not be generalizable to the larger population, as the sample of posts was provided by a self-selected cohort of women whose demographic characteristics were unidentified. We also only analyzed the questions that women posted and not the responses that they received. Thus, the knowledge exchanged among women through their responses is an area of interest for further research. Most importantly, this work did not monitor the behavioral outcomes of women who asked the questions. As a result, a longitudinal study is now needed to understand more comprehensively how women's attitudes and perceptions related to the adequacy of their pumped and fed human milk may impact their infant feeding behaviors.

This work also has several strengths. To our knowledge, the findings presented here provide the first detailed insights into the questions women have about the adequacy of the milk they pump and provide to their infants. Further, this study identifies the questions women ask each other versus their health care providers. Namely, this study uses mothers' own words to understand their perceptions and behaviors related to pumping and providing milk as questions arose and without the delays and time constraints often associated with seeking help through health care providers. As a result, this work may provide important insights into questions and difficulties that are otherwise unreported to health professionals.

Conclusion

The findings presented here illustrate the wide range of questions women ask each other about the adequacy of the milk they pump and provide to their infants. Their questions

highlight the need for future research into how pumping affects mothers' actual or perceived milk production, how styles for providing pumped human milk compare to styles for feeding directly at the breast, and the utility and safety of herbal galactagogues and other lactation supplements. Our findings also suggest several ways in which health care providers might help mothers to understand their milk production and feed their infants adequately and responsively.

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Disclosure Statement

R.Y., J.P.F., and K.M.R. conceived this study. R.Y. undertook data collection and analysis, and drafted the initial article. J.P.F. provided guidance on data collection and analysis. J.P.F. and K.M.R. provided critical feedback on the article. All authors approved the final version of this article.

No competing financial interests exist.

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