

# Milk Sharing in Practice: A Descriptive Analysis of Peer Breastmilk Sharing

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## Abstract

Peer breastmilk sharing has emerged in recent years as a subject of investigation and occasional controversy. Although researchers know that thousands of milk exchanges are facilitated through milk sharing Web sites every week, there is only limited research into milk sharing practices on the ground. This study examines these practices through a 102-item online survey that asked questions about milk sharing practices, perceptions of milk sharing, and demographic characteristics. Participants were recruited through social media sites specific to breastfeeding and parenting events in Central Florida. The sample consisted of 392 respondents. Data were analyzed using univariate analysis. We found that breastmilk sharing is a complex practice, showing high levels of overlap in which some donors are also recipients, and that cross-nursing sometimes occurs simultaneously with the exchange of expressed milk. Respondents often donated and received milk from people they knew; however, exchanging milk with strangers was also common. Many but not all used the Internet to facilitate milk exchange; participants used well-known milk sharing Web sites as well as their private virtual networks. The study found that most milk exchanges happen in-person as gifts and that selling and shipping breastmilk were rare. We suggest that further research is needed on breastmilk sharing practices to inform breastmilk safety research and policy recommendations.

## Introduction

**P**EEB BREASTMILK SHARING IS THE PRACTICE of giving and receiving breastmilk to feed an infant. Peer breastmilk sharing includes cross-feeding (breastfeeding a baby other than one's own) or the exchange of expressed human milk.<sup>1</sup> Although milk sharing is a common and ancient practice worldwide, use of the Internet to facilitate milk exchange has generated concern among medical professionals, who warn against the practice.<sup>2-4</sup> Common assumptions reflected in local and national news media<sup>5-8</sup> are that (1) peer milk sharing is composed primarily of strangers who use the Internet to exchange milk, (2) peer milk is commonly bought and sold, and (3) milk exchanged online is shipped from donors to recipients. There is a growing but limited literature available on the practice of online peer milk sharing that has found that tens of thousands of milk exchanges take place through peer milk sharing sites each year<sup>9-12</sup> and that mothers who engage in peer-to-peer milk sharing in the United States tend to be white, employed, and of higher socioeconomic status.<sup>13</sup>

Existing research has tended to focus on peer milk sharing as either an online or face-to-face activity.<sup>1,14</sup> Pilot ethnographic research in Central Florida suggested that milk

sharing may be a hybrid practice facilitated through online and face-to-face social networks. To gain a clearer understanding of the nature of milk sharing and to contribute to an important gap in the literature, we conducted an online survey of milk sharing practices.

This is an exploratory, limited analysis of peer breastmilk sharing. Although our study has a strong regional focus because we recruited heavily from our local networks, our survey was distributed online and in-person, allowing non-Florida residents to complete it. The specific aim of this research is to identify contemporary milk sharing practices. We constructed a survey around the following research questions: What are the forms of peer milk sharing? Who engages in peer milk sharing? How prevalent is the practice of buying and selling peer milk? How do milk exchanges take place? What is the role of the Internet in facilitating exchanges?

## Materials and Methods

### *Research design*

This research was awarded exempt status by the University of Central Florida Office for the Protection of Human Subjects (IRB protocol SBE-14-10207). The study consisted of a

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102-item survey created in Qualtrics software (2013; Qualtrics, Provo, UT) that asked questions about milk sharing practices, perceptions of milk sharing, and demographic characteristics. Participants were prompted with different questions depending on whether they donated or received milk (or both) asking more details about milk sharing practices. The survey was distributed from April 2014 to September 2014 and took approximately 30 minutes to complete.

### Sample and recruitment

We initially gained access to the community through ethnographic engagement. We recruited participants by distributing the survey link through Facebook in 18 local private breastfeeding, mothering, and milk sharing groups, the Human Milk 4 Human Babies and Eats on Feets Florida Web pages, our personal Web pages, and the Web pages of 20 professional contacts (breastfeeding advocates, lactation specialists, and medical and alternative medicine practitioners) who assisted with recruitment. Once we distributed our survey, the survey link was reshared by other page members to their personal networks, making the exact number of Facebook pages in which the survey appeared impossible to trace. Participants were also recruited at local breastfeeding support meetings and family events with support from a local breastfeeding support organization, The Breastfeeding Project. We distributed 350 flyers printed with the survey URL.

Potential participants were presented with the prompt: “milk sharing is the exchange of human milk including cross-feeding (also known as wet nursing) and exchanging expressed milk (including direct exchange, donation to a milk bank or organization like Get Pumped). A milk sharing participant is one who has given, received or facilitated milk sharing. Have you ever participated in milk sharing?” Participants who answered “yes” could take the survey. We focused recruitment on Central Florida because we have conducted ethnographic research on peer milk sharing in this area since Fall 2013, giving us access to individuals in this region involved in a multitude of milk sharing practices.

### Analytic strategy

Univariate analyses (descriptions of single variables) were used to provide details about the way individuals shared breastmilk in the sample. Respondents were instructed in the survey to answer questions about their experiences as a breastmilk donor or a breastmilk recipient. We examined these answers and provide descriptive statistics for donors and recipients separately to highlight the nuances of breastmilk sharing. Simple presentation of univariate statistics is appropriate for this descriptive pilot study, as this is a common first step in the process of understanding the data. Future work will build on this analysis by using inferential bivariate and multivariate statistical techniques.

### Results

Participants consisted of 392 individuals who reported engaging in milk sharing. We did not exclude participants who lived outside of Central Florida (36.6% of the sample) because they were not significantly different from the Central Florida sample. Demographic data show that nearly 90% of respondents were white. Most participants were college ed-

ucated, with an average of 64.6% of respondents across all categories reporting a Bachelor’s degree or higher. The sample was also socioeconomically privileged: 47% of participants across all categories reported household incomes above \$70,001 a year. The most common employment status was “not employed,” indicating that respondents were likely raising small children at home with the financial support of a spouse, followed by “employed full-time.” More than 70% of participants reported having only one or two children

TABLE 1. DEMOGRAPHIC CHARACTERISTICS BY TYPE OF MILK SHARING SURVEY RESPONDENT

	<i>Donor only</i> (n = 240)	<i>Recipient only</i> (n = 83)	<i>Donor and recipient</i> (n = 69)
<b>Race/ethnicity</b>			
Hispanic/Latino	4.9%	7.8%	6.5%
White	89.3%	87.5%	88.7%
Black/African American	2.9%	0.0%	0.0%
Asian American	1.0%	0.0%	1.6%
Native American	0.5%	4.7%	1.6%
Other	1.5%	0.0%	1.6%
<b>Educational status</b>			
Less than HS diploma	1.0%	0.0%	0.0%
HS diploma or GED	2.4%	9.2%	1.6%
Some college	16.0%	15.4%	16.4%
Associated degree	17.0%	15.4%	11.5%
Bachelor’s degree	34.0%	29.2%	36.1%
Master’s degree	23.3%	20.0%	24.6%
Doctoral degree	2.9%	6.2%	8.2%
Professional degree (MD, JD)	3.4%	4.6%	1.6%
<b>Income level</b>			
< \$19,000	3.0%	3.1%	6.6%
\$19,001–\$25,000	4.5%	4.7%	8.2%
\$25,001–\$40,000	14.1%	20.3%	19.7%
\$40,001–\$55,000	15.6%	12.5%	3.3%
\$55,001–\$70,000	14.6%	15.6%	13.1%
\$70,001–\$85,000	13.6%	10.9%	11.5%
\$85,001–\$100,000	11.0%	7.8%	11.5%
> \$100,001	23.6%	25.0%	26.2%
<b>Number of children</b>			
1	43.7%	36.9%	25.8%
2	37.4%	47.7%	41.9%
3	14.6%	9.2%	19.4%
4	3.9%	1.5%	6.5%
5 or more	0.5%	4.6%	6.5%
<b>Number of people in household</b>			
1	0.0%	0.0%	1.6%
2	3.4%	3.1%	0.0%
3	41.1%	33.8%	29.0%
4	33.3%	44.6%	40.3%
5	18.4%	10.8%	19.4%
6	3.4%	3.1%	4.8%
7	0.5%	0.0%	3.2%
8 or more	0.0%	4.6%	1.6%
<b>Employment status</b>			
Full-time	40.8%	32.3%	35.5%
Part-time	14.1%	24.6%	21.0%
Not employed	45.1%	43.1%	43.5%

Data are percentages.  
HS, high school.

(Table 1). All but five of our respondents (99% of the sample) reported participating in peer breastmilk sharing since 2010, the year that Eats on Feets and Human Milk 4 Human Babies first appeared.

The sample consisted of 240 breastmilk donors, 83 breastmilk recipients, and 69 respondents who reported being both donors and recipients. Figure 1 displays the forms of milk sharing reported by participants. Among donors, 80.4% reported only donating expressed milk, and 19.2% reported both donating expressed milk and cross-feeding. Among recipients, 86.7% reported only receiving expressed milk, and 13.3% reported having their child cross-fed and receiving expressed milk. Only one donor (0.04%) and no recipients reported only participating in cross-feeding.

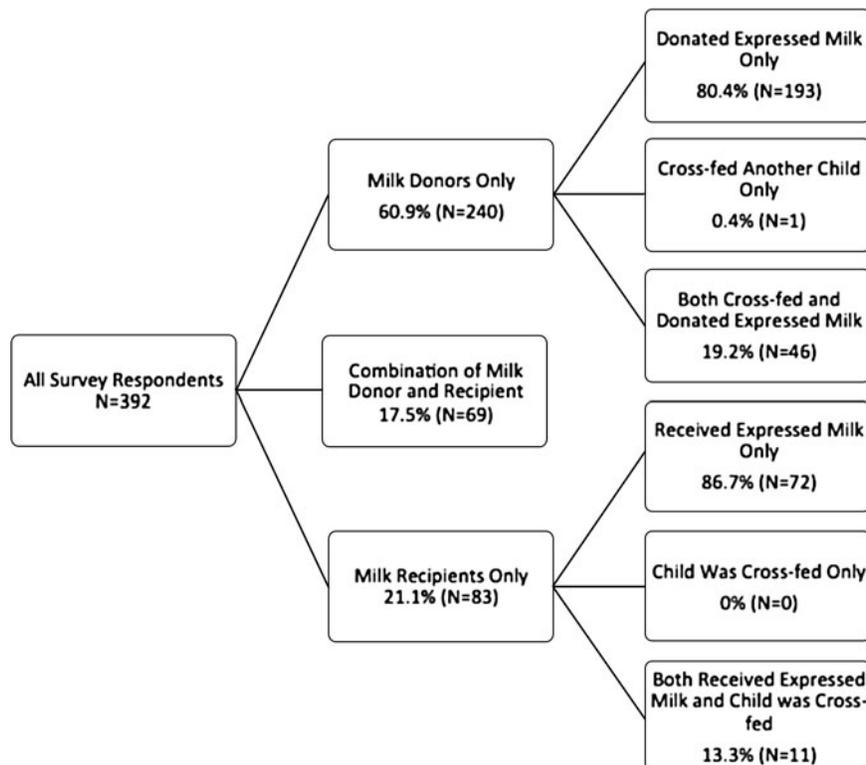
The data revealed that breastmilk sharing among the 17.5% ( $n=69$ ) of respondents who reported being both donors and recipients was highly variable. Figure 2 illustrates the variety of milk sharing practices in which this subset engaged. Participants reported receiving either expressed milk or from cross-feeding and donating either expressed milk or cross-feeding. Of these respondents, 58% reported engaging in two-category combinations, and 36.2% reported engaging in three-category combinations. Four respondents (5.8% of the subset) reported engaging in all four types of milk donation and receipt. The most common two-category combination was the receipt and donation of expressed milk. The most common three-category combination was having their child cross-nursed by someone else, donating expressed milk, and cross-nursing another person's child.

Breastmilk recipients reported a broad range of donors: 27.3% reported receiving milk from one donor, 36.7% re-

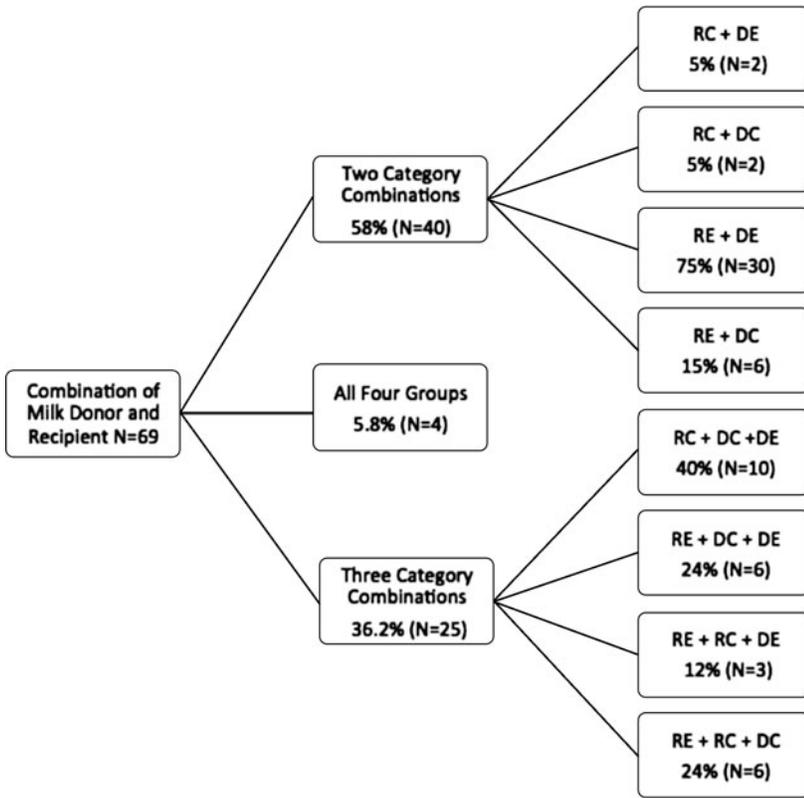
ported two to five donors, 17.2% reported six to 10 donors, and 17.1% reported 11 or more donors. Only two respondents reported an unknown number of donors due to use of a milk bank. Most donors (69%) reported donating to more than one recipient, with 29.4% donating to four or more recipients. Only 6% reported donating to a milk bank. Findings also indicated that breastmilk is rarely bought or sold. Only three (1%) donors reported selling their breastmilk, and six (3.8%) recipients bought breastmilk.

Survey responses also revealed relationships between milk donors and recipients. Results indicate that 91.9% of milk donors have provided milk to a stranger, 65.7% to a friend, and 45.3% to an acquaintance (Fig. 3). Nearly 60% donated to a family member, including sisters and cousins. Among recipients, 36.5% reported receiving milk from a friend, 27.7% from a stranger, and 19.9% from an acquaintance (Fig. 4). Although the majority of donors reported donating to strangers, recipients most commonly reported receiving milk from a friend. The category "other" included circumstances such as "adopted a child" for recipients and "donated to a milk bank or other local organization" for donors.

Several methods were used to transfer milk. From donors, 72.07% gave milk directly to the recipient (through delivery or pickup), 23.14% gave the milk to another person to deliver, and 4.78% sent it through the mail. The Internet was used by 78.3% of donors and 67.2% of recipients to facilitate milk exchange. Of those who used the Internet, a majority indicated using the independently hosted Web sites and Facebook pages of peer milk sharing organizations such as Human Milk 4 Human Babies and Eats on Feets. A substantial proportion



**FIG. 1.** Forms of milk sharing among milk sharing participants.



**FIG. 2.** Combinations of milk sharing among participants who are both donors and recipients. DC, donated milk through cross-feeding; DE, donated expressed milk; RC, received milk through cross-feeding; RE, received expressed milk.

of respondents (42.4%) also used local private Facebook groups (such as local breastfeeding support, cloth diapering, baby wearing, and natural parenting groups) and their own Facebook pages (12.3%) to facilitate breastmilk exchange.

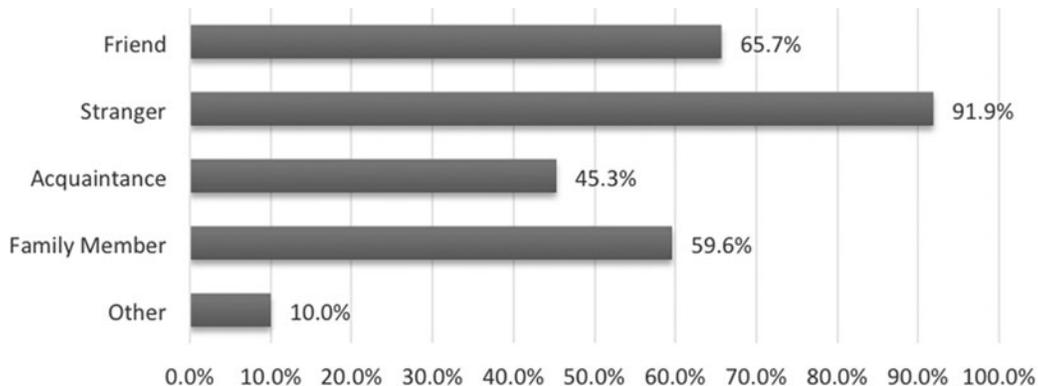
**Discussion**

This study explores current practices of peer breastmilk sharing with a regional focus. We build on the foundational work of several researchers who have been studying Internet-facilitated peer milk sharing nationally and internationally in the last few years.

The study by Thorley<sup>1</sup> of milk sharing included face-to-face practices like cross-feeding among 22 participants in eight countries and found that mothers who shared breastmilk were motivated by a desire to exclusively feed their babies

breastmilk and that most were selective about with whom they would share breastfeeding or breastmilk. Our findings support those of Thorley<sup>1</sup>: although 90.1% of our donors reported giving milk to strangers, they also reported giving milk to friends and family members in large numbers. Moreover, only 27.7% of recipient mothers reported taking milk from strangers.

The work of Gribble<sup>10-12</sup> is based on an international sample of 97 milk donors and 41 milk recipients. Gribble<sup>10</sup> found that although respondents engaged in milk sharing indicated an understanding that there was risk involved in using peer-shared milk, their knowledge and mitigation were incomplete. She also found that although peer donors expressed motivations for donating that were similar to those of milk bank donors,<sup>11</sup> peer donors and recipients differed from milk bank donors and recipients in significant ways.<sup>12</sup>



**FIG. 3.** Milk donor relationship to recipient mother.

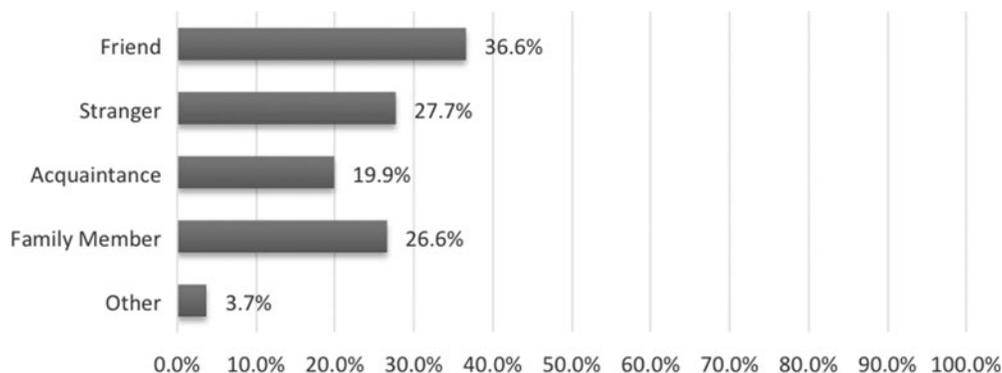


FIG. 4. Recipient mother relationship to donor.

Both Thorley<sup>1</sup> and Gribble<sup>10–12</sup> recruited worldwide via milk sharing Web sites.

The study by Palmquist and Doehler<sup>13</sup> is based on a larger sample ( $n=867$ ) in the United States and found a small but statistically significant difference in the socioeconomic status of donors and recipients.

Our study builds on this body of work by contributing a sample of 392 parents with a concentration in a single region who engaged in all forms of milk sharing. Our regional focus allowed for the recruitment of participants who engaged in various forms of online and offline milk sharing.

This preliminary study found that peer milk sharing is a hybrid of online and face-to-face activity. We found that parents who engage in milk sharing use a variety of resources to exchange milk, of which the Internet and milk sharing sites are only one part. Personal contacts play an important part, and even when the Internet is used for communication, it is often between people who know each other offline. Moreover, our study found that even when mothers relied primarily on the Internet to exchange breastmilk, a substantial proportion of them used personal social media pages and private groups rather than more well-known milk sharing sites. Our study also showed that donors will give milk to both strangers and people they know and that recipients, although some will accept milk from strangers, use their existing networks to procure peer milk from people they know. Most recipients had more than one donor. We found that most milk exchanges took place in-person, with the donor giving the milk directly to the recipient, either through personal delivery or pickup. In addition, a substantial proportion of the sample cross-fed as well as giving or receiving milk, an activity that can only take place face-to-face. These detailed findings add nuance and complexity to the growing but still small number of publications on the sharing of human milk.

A study published in *Pediatrics* found high levels of bacteria in breastmilk purchased online.<sup>15</sup> Another study by the same authors, based on the same dataset, also found that 10% of samples contained at least 10% bovine DNA, indicating formula or cow's milk contamination.<sup>16</sup> However, whether the study's methodology reflected on-the-ground practices of peer breastmilk sharing was unknown. A response to the first study,<sup>16</sup> also published in *Pediatrics*, stated that most peer milk is given free of charge, not sold, and that most milk is exchanged in-person.<sup>17</sup> Our findings support this assertion. Contrary to the idea made popular by

U.S. news coverage<sup>5–7,18</sup> of the reports of Keim et al.<sup>15,16</sup> that breastmilk is sold, shipped via mail, and exchanged between strangers, we found that although milk is frequently exchanged between strangers, it is rarely sold or shipped. Moreover, although most donors reported giving milk to strangers (Fig. 2), Figure 3 shows most recipients received milk from people they knew.

Most participants in our study exchanged milk through gifting rather than buying and selling. Responses to qualitative questions in the survey showcased a negative view of payment for peer milk, and exchanging money for breastmilk is prohibited on the milk sharing Web sites that some participants used. The majority of milk donors gave their milk directly to either a recipient or an intermediary, with few exchanging milk via mail. The fact that most milk was exchanged in-person speaks not only to the method by which milk is exchanged but also to the distance the milk travels. It is likely that milk is exchanged within local communities, as most milk was delivered or picked up from the donors' home. Additionally, milk sharing Web sites are organized based on geographic locations, and previous research found that peer donors prefer giving to local recipients rather than geographically distant milk banks.<sup>9</sup> Finally, we found that many of our respondents knew the people with whom they exchanged milk. Our research suggests that milk sharing is a nuanced practice that involves friends, acquaintances, and intermediaries.

Moreover, not only does this practice involve a variety of actors, it also takes on different forms. Nearly one-quarter (24.7%) of our sample participated in cross-feeding as donors, recipients, or both. However, in all but one case, cross-feeding was accompanied by the donation or receipt of expressed milk. The fact that only one respondent in the sample reported only participating in cross-feeding suggests that the practice of cross-feeding in this particular population is not a separate phenomenon but rather another iteration of milk sharing, different in form but not in kind. Our results also suggest that roles between donors and recipients can overlap or change.

Our sample was predominantly made up of white, college-educated, class-privileged participants, which may be a feature of milk sharing itself or could be a function of our ability to access milk sharing in all of its forms. Consistent with the findings of Palmquist and Doehler,<sup>13</sup> peer milk sharing in Central Florida appears to be an activity among white, class-privileged parents. Although the finding that most donors are

white and class privileged is consistent with research demonstrating that breastfeeding success is higher among white, class-privileged parents,<sup>2</sup> the fact that the recipient population was also race and class privileged suggests that peer breastmilk sharing itself is a privileged activity and that all parents may not have equal access to milk sharing. Parents may not have equal opportunity to express excess milk to donate due to employment factors or to engage in the work involved—organizing, coordinating, and transporting—in obtaining peer donor milk. The racial, ethnic, and socioeconomic dimensions of peer milk sharing bear scrutiny in future research.

#### Limitations and future directions

A limitation of this study is that participants were recruited through nonrandom sampling techniques, which may have biased the results. Our regional focus is both a strength and a limitation. Our study focuses on milk sharing in a single region of the United States, which is not representative of the entire nation. However, a nationwide recruitment strategy would have required full reliance on milk sharing Web sites, which could skew our sample toward online milk sharing. Our approach allowed us to recruit participants engaged in both online and offline milk sharing. There are currently no milk banks in the Central Florida area that are affiliated with the Human Milk Bank Association of North America, which may be one reason peer milk sharing was so common among our participants and donating to milk banks was uncommon (only 6% of milk donations). There is one nonprofit organization in the area, Get Pumped, that collects milk from screened donors and distributes it unprocessed to qualified recipients. These features of Central Florida may contribute to a different set of milk sharing practices in this region compared with others. Future studies should be conducted in multiple locations to account for geographic variation in the practice of milk sharing. Finally, it is worth noting that although most of our sample did not engage in the purchase and sale of breastmilk, there are Web sites that facilitate the sale and shipment of human breastmilk. The extent of this practice is largely unknown and should be explored in future studies.

Our study relied on closed-ended and short response questions that, while providing an overview of milk sharing practices, lacked the depth required to fully uncover exactly what parents do when they share milk and why they do it. A deeper, ethnographic study that uses interviews would provide a more thorough understanding of contemporary milk sharing. Our study also has significant implications for the design of future research. Our finding that milk sharing happens primarily at a local level points to the necessity for more regionally based research.

#### Conclusions

The complex nature of peer milk sharing practices in the United States is becoming more apparent as more research is conducted. This study contributes to this growing literature. We found that breastmilk sharing is a complex practice, showing high levels of overlap in which some donors are also recipients and that cross-nursing sometimes occurs simultaneously with the exchange of expressed milk. Respondents often donated and received milk from people they knew; however, exchanging milk with strangers was also common.

Many but not all used the Internet to facilitate milk exchange; participants used well-known milk sharing Web sites as well as their private virtual networks. The study found that most milk exchanges happen in person as gifts and that selling and shipping breastmilk were rare. We suggest that further research is needed on breastmilk sharing practices to inform breastmilk safety research and policy recommendations.

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#### Disclosure Statement

No competing financial interests exist.

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