Breastmilk Sharing: Awareness and Participation Among Women in the Moms2Moms Study

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Abstract

Background: Feeding infants unscreened, raw human milk from a source other than the mother may pose health risks. The objectives of the Moms2Moms Study were to estimate the proportions of mothers who were aware of breastmilk sharing, considered sharing, and shared milk and to identify associated maternal and child characteristics.

Subjects and Methods: All eligible women ($n=813$) who delivered at The Ohio State University Wexner Medical Center (Columbus, OH) and did not indicate an intention to exclusively “bottle feed” were asked to participate in this cohort by completing a postal questionnaire at 12 months postpartum (499 [61%] responded). Women who shared milk participated in a follow-up interview.

Results: Awareness of milk sharing was high (77%) and positively associated with socioeconomic status, age, non-Hispanic white race, having fed one’s infant at the breast, and reporting no difficulty making enough milk. Twenty-five percent considered sharing. Primiparous women (odds ratio [OR]=2.12; 95% confidence interval [CI] 1.02, 4.62) and those who delivered preterm (OR=3.27; 95% CI 1.38, 7.30) were more likely to consider feeding milk from another mother. Women with public/no insurance (OR=0.52; 95% CI 0.27, 0.97) were less likely to consider providing milk for someone else; highly educated women were more likely (OR=1.90; 95% CI 1.12, 3.32). Almost 4% of women shared milk and did so among friends or relatives or had a preterm infant who received screened and pasteurized donor milk.

Conclusions: Sharing milk among friends and relatives is occurring. Many women are aware of milk sharing and have considered it.

Introduction

SHARING HUMAN MILK TO FEED a child in need has been documented in various cultures for centuries. Most commonly, this practice has been in the form of feeding another woman’s child at the breast.¹ Although this is relatively uncommon in the United States today, breastfeeding one’s own infant has grown in popularity, from 25% of infants in 1970 to 77% in 2010.^{2,3} Most women provide milk for their child by using a breast pump and bottle in addition to feeding at the breast.⁴ Using a pump makes it possible to store

milk for future feedings. Some women report producing more milk than their infant needs and may accumulate stored milk,⁴ whereas others report difficulty making enough milk, and some mothers and children experience medical complications that interfere with milk production or breastfeeding.^{5,6} These phenomena are converging to foster a possible increase in breastmilk sharing without physical contact between the milk provider and the recipient.

Women who produce extra milk have options, including discarding, donating to a milk bank, giving to a friend or relative, or connecting with an unfamiliar party seeking

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milk. Those seeking milk may consider sources including friends or relatives who are lactating or have leftover frozen milk or networking or the Internet to find a willing provider.⁷⁻⁹ The Human Milk Banking Association of North America (HMBANA) milk banks offer pasteurized milk, but it is generally only dispensed via prescription to hospitalized infants.¹⁰

Although benefits accrue to infants consuming breastmilk, the risks of raw milk from an unscreened source include possible exposure to infectious diseases, pharmaceuticals that are contraindicated for breastfeeding, illicit drugs, and occupational and environmental toxicants.^{10,11} It is difficult for the average person to verify the substance is 100% human milk. Because of the potential risks, in 2010 the U.S. Food and Drug Administration warned against obtaining milk from an unfamiliar source,¹² and the American Academy of Pediatrics recommended in 2005 against feeding preterm infants raw milk from unscreened donors.¹³ Although HMBANA milk banks actively manage many risks through donor screening and pasteurization for the milk they process, individuals sharing milk outside this system are left to self-manage risks.¹⁴ It remains unknown how risks may differ when sharing occurs between familiar versus unfamiliar parties.

To better understand the health impacts of milk sharing, it is important to estimate its prevalence. In addition, it is important to examine what proportions of mothers are aware of and consider milk sharing, as they might share milk in the future. The objective of the Moms2Moms Study cohort was to examine the awareness, consideration, participation, and reasons for sharing milk and identify associated maternal and child characteristics. The intention was to inform healthcare professionals about contemporary milk sharing so that they may be prepared to discuss this topic with parents.

Materials and Methods

Study population and data collection

A roster was assembled of all English-speaking women ≥ 18 years of age who delivered a singleton, liveborn infant at >24 weeks of gestation at The Ohio State University Wexner Medical Center (Columbus, OH) during 5 months of 2011 ($n=1,244$). The Ohio State University Wexner Medical Center operates a large delivery service for both high- and low-risk obstetric patients in the Columbus area. Women whose medical record indicated their intention to exclusively "bottle feed" their infant ($n=303$), women lacking valid contact information ($n=111$), prisoners ($n=11$), and infant deaths ($n=6$) were excluded.

Twelve months after delivery, a questionnaire was mailed to eligible women to assess the following: lactation and infant feeding behaviors; knowledge, attitudes, and participation in milk sharing; and demographics. Phone calls were made 10 and 20 days later to remind women to return the questionnaire in the postage-paid envelope. A \$10 gift card incentive was provided upon completion. Women who shared milk and indicated their additional consent on the questionnaire were invited to a 20-minute semistructured phone interview and given a \$20 gift card.

This study was reviewed and approved by The Ohio State University Biomedical Institutional Review Board.

Study variables

Maternal and child characteristics were gathered from the obstetric record and the questionnaire. Maternal age (reported in detail in Table 1, but for analysis categories were collapsed to ≤ 30 versus >30 years), parity (primiparous versus multiparous), delivery type (cesarean section versus vaginal), insurance status (public or none versus private), and gestational age (preterm 25–36 completed weeks versus term) were obtained from the medical record. Maternal education (college or postgraduate versus less), marital status (married or living with partner versus single, not living with partner, separated, or divorced), race and ethnicity (non-Hispanic white, non-Hispanic African American/black, Hispanic, or other and multiple races; additional categories were offered as response options but were grouped because of small numbers), family income ($< \$35,000$ versus greater), receipt of Special Supplemental Nutrition Program for Women, Infants and Children (WIC) benefits during pregnancy or postpartum (yes/no), maternal smoking during pregnancy or postpartum (yes/no), sex of the child, maternal employment or school enrollment (>20 hours/week versus 0–20 hours/week), and use of child care outside the home (yes/no) were measured via the questionnaire.

Whether and when the woman pumped milk for her own child and whether the child was ever fed his or her mother's milk were assessed on the questionnaire and converted to binary variables. Feeding at the breast and feeding expressed milk were measured separately. Perceptions of low milk supply or overproduction were assessed by asking whether the woman ever had difficulty in making enough breastmilk to feed her child and whether she ever made more milk than needed (binary variables).

The questionnaire also inquired about milk sharing: providing milk to a child who was not one's own and feeding milk from another mother to one's own child. For each behavior, one question assessed: (1) awareness (i.e., ever heard of it and from what information source), (2) consideration (i.e., ever thought about feeding her child another mother's milk or providing milk for a child who was not her own), and (3) participation (i.e., ever gave or received milk).

Statistical analysis

Univariate statistics were used to examine each variable and describe the sample. Respondents and nonrespondents were compared using bivariate statistics (t tests, odds ratios [ORs]). Awareness, consideration, and participation in milk sharing were examined in relation to maternal and child characteristics and feeding practices using exact logistic regression. All analyses used SAS version 9.3 software (SAS Institute, Inc., Cary, NC).

Results

Respondent and nonrespondent characteristics

Of 813 mailed questionnaires, 501 were returned completed (61.6% response proportion). Two were excluded for unintelligible responses, leaving 499 in the analytic dataset. Almost one-half of respondents were under 30 years of age, and more than two-thirds of respondents had at least a college degree (Table 1). Approximately three-quarters of the sample were married; a similar proportion were non-Hispanic white.

TABLE 1. CHARACTERISTICS AND BREASTFEEDING PRACTICES OF MOMS2MOMS STUDY PARTICIPANTS (OHIO, 2011–2012)

	n	%
Maternal age (years)		
19–24	49	9.8
25–30	184	36.9
31–36	180	36.1
37–46	57	11.4
Missing	29	5.8
Parity		
1 (0 previous live births)	248	49.7
2	156	31.3
≥3	95	19.0
Cesarean section	186	37.3
Missing	29	5.8
Health insurance		
Private	388	77.8
Public or none	110	22.0
Missing	1	0.2
Gestational age <37 weeks (preterm)	60	12.0
Maternal education		
High school/GED or less	69	13.8
Some college	93	18.6
College graduate	176	35.3
Postgraduate education	159	31.9
Missing	2	0.4
Marital status		
Married	387	77.6
Living with partner	52	10.4
Single	46	9.2
Not living with partner	10	2.0
Separated/divorced	2	0.4
Missing	2	0.4
Race and ethnicity		
Non-Hispanic Caucasian/white	378	75.8
Non-Hispanic African American/black	55	11.0
Hispanic	24	4.8
Other or multiple races	41	8.2
Missing	1	0.2
Household income		
<\$15,000	70	14.0
\$15,000–34,999	85	17.0
\$35,000–54,999	61	12.2
\$55,000–74,999	68	13.6
≥\$75,000	212	42.5
Missing	3	0.6
WIC receipt	141	28.3
Missing	3	0.6
Smoker (pregnancy or postpartum)	40	8.0
Missing	2	0.4
Child sex: male	252	50.5
Missing	15	3.0
Employed or enrolled in school >20 hours/week since delivery	340	68.1
Missing	1	0.2
Child has attended child care outside the home	243	48.7
Missing	2	0.4
Ever directly breastfed own child	445	89.2
Missing	2	0.4
Ever pumped milk to feed own child	439	88.0

(continued)

TABLE 1. (CONTINUED)

	n	%
Missing	3	0.60
Ever had difficulty making enough milk for own child	377	75.6
Missing	1	0.20
Ever made more milk than needed for own child	227	45.5
Missing	6	1.2

GED, general educational development test; WIC, Special Supplemental Nutrition Program for Women, Infants and Children.

However, 11.0% identified as non-Hispanic African American/black, 4.8% as Hispanic, and 8.2% as multiracial or of another race/ethnicity. Thirty-one percent of families were living on less than \$35,000 per year, and 28.3% were WIC recipients. More than two-thirds of mothers were working or going to school more than 20 hours/week, and one-half of children were attending child care outside the home. Almost all children were fed breastmilk at least once (89.2% were ever fed directly at the breast, 88.0% of mothers pumped milk for their child). Perceptions that one's milk supply did not match the needs of one's child were common: 75.6% reported difficulty making enough milk, and 45.5% reported excess production at some point during lactation.

Respondents were younger (difference in mean age, 559 days; $t = 3.99$, $p < 0.0001$) and less likely to be multiparous (OR for responding = 0.62; 95% confidence interval [CI] 0.47, 0.83), to have public or no health insurance (OR = 0.25; 95% CI 0.18, 0.34), or to be non-Hispanic African American/black (OR = 0.30; 95% CI 0.21, 0.44 compared with non-Hispanic white) compared with nonresponders. Responders and nonresponders did not differ on mode of delivery, on being Hispanic or of multiple or other races/ethnicities, or on preterm birth.

Prevalence estimates

Awareness of milk sharing was high: 75.2% reported ever hearing about a child being fed milk from another mother, and 73.0% reported ever hearing about a mother providing milk for a child other than her own (Table 2). The most common sources reported for hearing about milk sharing included friends or relatives and the media. Healthcare providers were less common information sources (15.4–16.8%). Milk sharing Web sites and social media were sources for approximately 11 and 7% of respondents, respectively. Almost all of those who had ever thought about the concept of feeding a child milk from another mother identified the health of the donor or the safety of the milk as something one should consider before sharing milk. However, only 19.0% thought that considering their healthcare provider's opinion was important.

More respondents reported having ever thought about providing milk to a child who was not her own (20.8%) than had ever thought about feeding her own child another mother's milk (7.8%) (3.6% considered both). Nineteen women (3.8%) reported sharing milk. Seven (1.4%) fed their child another mother's milk, 10 (2.0%) made milk to be fed to a child who was not her own, and two (0.4%) did both.

TABLE 2. AWARENESS OF AND PARTICIPATION IN BREASTMILK SHARING, MOMS2MOMS STUDY (OHIO, 2011–2012)

	n	%
Ever heard about a child being fed breastmilk from another mother	375	75.2
Where one heard about it ^a		
Friend or relative	164	43.7
News, TV, radio, magazine	156	41.6
Web site for parents	83	22.1
Healthcare provider	63	16.8
Web site about milk sharing	40	10.7
Social media (e.g., Twitter, Facebook)	25	6.7
Other	11	2.9
Don't know	2	0.5
What a parent should think about before feeding one's child breastmilk from another mother ^a		
Whether the other mother is healthy	336	67.3
Whether the other mother's milk is safe	341	68.3
How much it will cost to buy	154	30.9
How the milk will be shipped	179	35.9
Whether the milk will benefit the child	199	39.9
Whether the milk will harm the child	246	49.3
What will family members think	37	7.4
What will doctor or healthcare provider think	95	19.0
Other	12	2.4
Respondent never thought about the concept	131	26.3
Ever thought about feeding own child breastmilk from another mother	39	7.8
Missing	2	0.4
Ever fed own child another mother's milk	9	1.8
Missing	1	0.2
Ever heard about a mother providing breastmilk for a child who is not her own	364	73.0
Missing	1	0.2
Where you heard about it ^a		
Friend or relative	153	42.0
News, TV, radio, magazine	152	41.8
Web site for parents	87	23.9
Healthcare provider	56	15.4
Web site about milk sharing	39	10.7
Social media (e.g., Twitter, Facebook)	26	7.1
Other	5	1.4
Missing	3	0.8
What should a mother think about before providing milk to a child who is not her own ^a		
Whether she is healthy	323	64.7
Whether her milk is safe	311	62.3
How much it will cost to produce	70	14.0
How the milk will be shipped	148	29.7
Whether the milk production will benefit her	114	22.8
Whether the milk production will harm her	139	27.9
What will family members think	33	6.6
What will doctor or healthcare provider think	81	16.2
Other	30	6.0
Respondent never thought about the concept	137	27.5
Missing	2	0.4
Ever thought about providing milk to a child who is not one's own	104	20.8
Missing	2	0.4
Ever made breastmilk (pumping or feeding directly at the breast) to be fed to a child who was not one's own	12	2.4
Missing	1	0.2
Ever fed own child another mother's milk and also made breastmilk for another child	2	0.4

^aMultiple responses permitted.

Characteristics associated with awareness, consideration, and participation in milk sharing

Awareness of milk sharing was more common among women who were highly educated, were older, were married or living with a partner, and had ever fed their infant at the breast or pumped milk for their child (Table 3). Non-Hispanic African American/black women, low-income women, women receiving WIC benefits, smokers, those with public or no insurance, women who delivered preterm, and those who ever had difficulty making enough milk were less likely to be aware of milk sharing. Parity, cesarean section, child sex, maternal employment, use of child care, and making too much milk were not associated with awareness.

Fewer differences were apparent when examining whether one had ever considered sharing milk (including those who did share). Primiparous women and those who delivered preterm were more likely to have thought about feeding their child milk from another mother. Having ever thought about providing milk to a child who was not one's own was more common among highly educated women, those who had ever pumped milk for their child, and those who had made too much milk. Consideration of providing milk was less common among women with public or no health insurance and those who had difficulty producing enough milk. Preterm delivery was associated with an increased odds of sharing milk (Table 4). Effect estimates for other characteristics were near the null or imprecise (e.g., ever made too much milk: OR = 2.60; 95% CI 0.90, 8.47).

Qualitative results from interviews with women who shared milk

Thirteen of the 19 women (68.4%) who shared milk consented to the interview. Two were unreachable; 11 were interviewed. Six interviewees had fed their infant milk from another mother: four received milk from a milk bank, and two obtained milk from one or more friends. One of those who obtained milk from friends reported her infant was fed this milk once when the friend was babysitting and ran out of something to feed the infant. The other woman sought milk from friends because her infant would not tolerate formula; she received 1,000–1,500 oz over 4 months from three friends. All women who obtained milk from a milk bank or friends reported being aware of one or more health concerns about feeding their infant shared milk. They either received information from hospital personnel or trusted them to offer only safe milk (in the case of the milk bank milk recipients) or discussed with the friend whether she had any medical issues (in the case of one woman who received a friend's milk). All of those who received milk reported one or more benefits to their infant (e.g., better tolerance, immunity). One of the women who received milk from friend(s) had also visited milk sharing Web sites but did not complete an exchange because the interested milk provider was taking medication.

Six of those interviewed provided milk to an infant who was not their own: three to a relative's child, one to a friend's child and also her mother with cancer, one to a milk bank, and one to both a milk bank and a friend's child. At the time of the interview, one woman was accumulating milk for her co-worker who would deliver soon. The quantities provided ranged 36 to 2,500 oz. Stated reasons for providing milk in-

cluded wanting to maintain one's milk supply, boost metabolism, or help someone in need. None expressed concerns about providing milk or reported any harms to recipients. One woman reported visiting milk sharing Web sites when she was searching for how to donate to a milk bank, but no women reported sharing via the Internet or selling milk.

Discussion

In this retrospective cohort study, awareness of milk sharing was very high and generally associated with middle to high socioeconomic status and non-Hispanic white race/ethnicity. Awareness stemmed from multiple sources including friends and relatives and the media, much more often than healthcare providers. A significant subset of women reported considering milk sharing, and this was more often about providing milk than obtaining it. Women who never experienced low milk supply or who pumped were more likely to consider providing milk, perhaps because they had accumulated milk. Overall, in this sample of women who generally intended to breastfeed, 3.8% shared milk. Women who shared belonged to one of two categories: those who shared via a milk bank and those who exchanged milk among relatives or friends to address a short- or long-term need. No women reported sharing milk via the Internet.

To the authors' knowledge, this is the first large study of contemporary milk sharing practices in the United States, with the first report of how widespread the awareness of milk sharing is and what proportion of mothers contemplate and participate in sharing. The handful of previous studies in this area did not have a comparison group, were mostly qualitative, and were focused in other countries or multinationally.^{7,15} Nevertheless, some of the same themes surrounding the circumstances of sharing milk appear across studies, including motivations to help someone in need and awareness of some potential health risks.

Friends, relatives, and the media were reported as information sources about milk sharing much more often than healthcare providers. The current American Academy of Pediatrics statement on breastfeeding and the use of human milk does not address milk sharing.¹⁶ As a result, physicians may not be discussing this topic with patients, and parents may be reluctant to ask for guidance.

Five of the infants who received milk received it during the neonatal hospital stay, were born preterm, and almost certainly were given milk processed by the local milk bank. Provision of milk bank milk is fairly common at The Ohio State University Wexner Medical Center. This subgroup is distinctive in that this form of sharing was facilitated by a healthcare provider and the milk was screened and pasteurized. It likely explains the observed positive association between preterm birth and milk sharing. None of these families reported sharing beyond the hospital stay. This contrasts with others who shared milk outside of the milk bank system, which poses potential health risks.

This largest study to date about milk sharing benefited from many health and demographic variables to examine in relation to the outcomes, thereby highlighting areas for future research with via multivariable analyses. The response proportion was good but varied by some demographic characteristics. Our prevalence estimates may be biased upward if

TABLE 3. ASSOCIATIONS BETWEEN MATERNAL OR CHILD CHARACTERISTICS AND AWARENESS AND CONSIDERATION OF BREASTMILK SHARING, MOMS2MOMS STUDY (OHIO, 2011–2012)

	Ever heard about a child being fed breastmilk from another mother or ever heard about a mother providing breastmilk for a child who is not her own				Ever thought about feeding own child milk from another mother				Ever thought about providing milk to a child who is not one's own			
	Yes	No	Unadjusted OR	95% CI	Yes	No	Unadjusted OR	95% CI	Yes	No	Unadjusted OR	95% CI
Maternal age (years)												
≤30	185	77	1.00	Reference	23	237	1.00	Reference	51	210	1.00	Reference
>30	200	37	2.25	1.42, 3.60	16	221	0.75	0.36, 1.52	53	183	1.19	0.76, 1.88
Parity												
Primiparous	186	62	0.78	0.51, 1.22	26	222	2.12	1.02, 4.62	56	192	1.22	0.77, 1.93
Multiparous	199	52	1.00	Reference	13	236	1.00	Reference	48	201	1.00	Reference
Cesarean section												
No	227	57	1.00	Reference	22	260	1.00	Reference	64	218	1.00	Reference
Yes	138	48	0.72	0.46, 1.15	14	172	0.96	0.44, 2.03	36	150	0.82	0.50, 1.32
Health insurance												
Private	317	71	1.00	Reference	32	355	1.00	Reference	89	297	1.00	Reference
Public or none	67	43	0.35	0.22, 0.57	6	103	0.65	0.22, 1.63	15	95	0.53	0.27, 0.97
Gestational age												
Term	348	91	1.00	Reference	28	409	1.00	Reference	93	345	1.00	Reference
Preterm (<37 weeks)	37	23	0.42	0.23, 0.78	11	49	3.27	1.38, 7.30	11	48	0.85	0.38, 1.74
Maternal education												
Some college or less	102	60	1.00	Reference	16	145	1.00	Reference	23	139	1.00	Reference
College or postgraduate education	282	53	3.12	1.98, 4.94	23	312	0.67	0.33, 1.40	80	254	1.90	1.12, 3.32
Marital status												
Single, separated/divorced, not living with partner	37	21	1.00	Reference	4	54	1.00	Reference	9	49	1.00	Reference
Married or living with partner	347	92	2.14	1.13, 3.96	35	403	1.17	0.40, 4.72	94	344	1.49	0.69, 3.57
Race and ethnicity												
Non-Hispanic Caucasian/white	303	75	1.00	Reference	30	348	1.00	Reference	79	299	1.00	Reference
Non-Hispanic African American/black	33	22	0.37	0.20, 0.71	4	50	0.93	0.23, 2.81	9	46	0.74	0.31, 1.62
Hispanic	19	5	0.94	0.33, 3.32	3	20	1.74	0.31, 6.39	5	18	1.06	0.30, 3.07
Multiple or other races/ethnicities	29	12	0.60	0.28, 1.35	2	39	0.60	0.07, 2.51	11	29	1.44	0.62, 3.13

(continued)

TABLE 3. (CONTINUED)

	Ever heard about a child being fed breastmilk from another mother or ever heard about a mother providing breastmilk for a child who is not her own				Ever thought about feeding own child milk from another mother				Ever thought about providing milk to a child who is not one's own			
	Yes	No	Unadjusted OR	95% CI	Yes	No	Unadjusted OR	95% CI	Yes	No	Unadjusted OR	95% CI
Household income												
<\$35,000	99	56	0.34	0.22, 0.54				0.44, 2.06	28	127	0.77	0.45, 1.27
≥\$35,000	286	55	1.00	Reference				Reference	76	264	1.00	Reference
WIC receipt												
No	297	58	1.00	Reference	29	326	1.00	Reference	82	272	1.00	Reference
Yes	86	55	0.31	0.19, 0.49	10	130	0.87	0.37, 1.89	21	120	0.58	0.33, 1.00
Smoker (pregnancy or postpartum)												
No	360	97	1.00	Reference	35	421	1.00	Reference	99	357	1.00	Reference
Yes	24	16	0.41	0.20, 0.85	4	36	1.34	0.33, 4.05	4	36	0.40	0.10, 1.16
Child sex												
Male	194	58	1.00	Reference	21	230	1.00	Reference	47	204	1.00	Reference
Female	179	53	1.01	0.65, 1.58	18	213	0.93	0.45, 1.88	55	176	1.36	0.86, 2.16
Maternal employment/school												
Not working/going to school >20 hours/week	114	44	1.00	Reference	16	141	1.00	Reference	35	123	1.00	Reference
Working/going to school >20 hours/week	271	69	1.52	0.95, 2.40	23	317	0.64	0.31, 1.34	69	270	0.90	0.56, 1.47
Child in child care												
outside the home												
No	190	64	1.00	Reference	27	314	1.00	Reference	58	196	1.00	Reference
Yes	194	49	1.33	0.86, 2.09	12	143	1.10	0.54, 2.25	45	197	0.77	0.49, 1.22
Ever directly breastfed own child												
No	30	22	1.00	Reference	6	46	1.00	Reference	6	46	1.00	Reference
Yes	354	91	2.85	1.49, 5.38	33	411	0.62	0.24, 1.90	98	346	2.17	0.89, 6.40
Ever pumped milk to feed own child												
No	35	19	1.00	Reference	3	50	1.00	Reference	5	49	1.00	Reference
Yes	347	92	1.92	0.99, 3.60	36	403	1.49	0.44, 7.83	99	339	2.86	1.10, 9.44
Ever had difficulty making enough milk for own child												
No	102	19	1.00	Reference	8	112	1.00	Reference	34	87	1.00	Reference
Yes	283	94	0.56	0.31, 0.98	31	346	1.25	0.54, 3.25	70	306	0.59	0.36, 0.97
Ever made more milk than needed for own child												
No	199	67	1.00	Reference	19	247	1.00	Reference	35	230	1.00	Reference
Yes	182	45	1.31	0.84, 2.06	20	206	1.26	0.62, 2.57	69	158	2.86	1.78, 4.66

CI, confidence interval; OR, odds ratio; WIC, Special Supplemental Nutrition Program for Women, Infants and Children.

TABLE 4. CHARACTERISTICS OF MOTHERS WHO EVER SHARED BREASTMILK, MOMS2MOMS STUDY (OHIO, 2011–2012)

	n	%	OR	95% CI
Maternal education				
Some college or less	6	31.6	1.00	Reference
College or postgraduate education	13	68.4	1.04	0.36, 3.41
Maternal age (years)				
≤30	8	42.1	1.00	Reference
>30	9	47.4	0.99	0.35, 2.77
Missing	2	10.5		
Marital status				
Single, separated/divorced, not living with partner	2	10.5	1.00	Reference
Married or living with partner	17	89.5	1.13	0.26, 10.35
Race and ethnicity				
Non-Hispanic Caucasian/white	16	84.2	1.00	Reference
Non-Hispanic African American/black	2	10.5	0.85	0.09, 3.80
Hispanic	0	0	0.68	0.00, 3.30
Multiple or other races/ethnicities	1	5.3	0.57	0.01, 3.84
Household income				
<\$35,000	4	21.1	0.58	0.14, 1.85
≥\$35,000	15	79.0	1.00	Reference
WIC receipt				
No	17	89.5	1.00	Reference
Yes	2	10.5	0.29	0.03, 1.23
Smoker (pregnancy or postpartum)				
No	18	94.7	1.00	Reference
Yes	1	5.3	0.62	0.02, 4.17
Parity				
Primiparous	10	52.6	1.13	0.40, 3.19
Multiparous	9	47.4	1.00	Reference
Cesarean section				
No	11	57.9	1.00	Reference
Yes	8	42.1	1.12	0.38, 3.13
Health insurance				
Private	17	89.5	1.00	Reference
Public or none	2	10.5	0.41	0.05, 1.77
Child sex				
Male	11	57.9	1.00	Reference
Female	8	42.1	0.79	0.27, 2.19
Gestational age				
Term	13	68.4	1.00	Reference
Preterm (<37 weeks)	6	31.6	3.70	1.10, 10.97
Maternal employment/school				
Not working/going to school >20 hours/week	6	31.6	1.00	Reference
Working/going to school >20 hours/week	13	68.4	1.00	0.35, 3.27
Child care outside the home				
Child does not attend	9	47.4	1.00	Reference
Child attends	10	52.6	1.16	0.42, 3.30
Ever directly breastfed own child				
No	4	21.1	1.00	Reference
Yes	15	79.0	0.42	0.13, 1.81
Ever pumped milk to feed own child				
No	0	0	1.00	Reference
Yes	19	100.0	3.43	0.73-∞
Ever had difficulty making enough milk for own child				
No	5	26.3	1.00	Reference
Yes	17	73.7	0.90	0.30, 3.25
Ever made more milk than needed for own child				
No	6	31.6	1.00	Reference
Yes	13	68.4	2.62	0.91, 8.55

CI, confidence interval; OR, odds ratio; WIC, Special Supplemental Nutrition Program for Women, Infants and Children.

those who were aware of milk sharing, considered sharing, or did share were more likely to respond. However, the sample reflected greater racial/ethnic and economic diversity than many breastfeeding studies. The reported prevalence estimates are based on a sample that excluded women who intended to exclusively “bottle feed” (generally interpreted as formula feed) and, therefore, best apply to women intending to feed human milk. Ohio’s breastfeeding rates are low (65.4% ever breastfed versus 76.5% nationally).² It is possible milk sharing is also less common in Ohio and that our estimates are an underestimate for the United States, but this remains to be studied in larger and more representative samples.

The number of respondents who shared was limited, so those results may be considered exploratory. Some women who shared milk did not consent to the follow-up interview. As a result, the conclusions based on the interview component may not reflect everyone’s experiences if non-consenting women participated in other forms of sharing like feeding another woman’s child at the breast or sharing via the Internet.

Conclusions

Healthcare providers should be aware that most mothers who intend to breastfeed are aware of milk sharing, that some consider sharing, and that a small percentage does share. Established theory, such as the Health Belief Model, could guide future development of educational interventions to help parents make choices about infant feeding.¹⁷ The Health Belief Model addresses an individual’s perception of the threat posed by a problem, the benefits of avoiding that threat, and the factors that influence his or her decision to act (in this case, to share milk). Such interventions should consider that perceived risks and benefits of feeding milk from another mother may not align with actual risks and benefits and that women may perceive significant barriers to producing adequate milk for their own child. Women with lactation difficulties should be directed to lactation support services early for assistance. Women with excess milk who are eligible to donate can be directed to a HMBANA milk bank so the milk can be pasteurized and distributed to hospitalized infants. Clinicians should discuss milk sharing when helping families navigate infant feeding choices. Finally, future research is needed to better understand the risks and benefits of sharing milk outside the milk banking system.

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