



Profile of women attended by the human milk bank of Odete Valadares Maternity Hospital in Belo Horizonte, Minas Gerais State, Brazil

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ABSTRACT. In Brazil, the first “Human Milk Bank” (HMB) was implemented in 1943. Minas Gerais’ oldest HMB still in operation was opened on October 19th, 1986 – the HMB of Odete Valadares Maternity Hospital [*Maternidade Odete Valadares*] (MOV) – and remains as a protagonist service in breastfeeding (BF) promotion in Minas Gerais. MOV has the oldest HMB of Minas Gerais, which is a reference service for maternal and child healthcare in the state. Learning about the profile of the population served by it is important as it allows ensuring and improving the conditions and resources necessary for the service, as well as facilitating the creation of strategies to improve BF support. Thus, the objective of this study was to learn about the profile of women who used MOV’s HMB in a month of 2017. Descriptive study with quantitative approach. As data sources, service forms from November 2017 were used, totaling a final sample of 238 records. The services covered women who gave birth in public and private hospitals. Most mothers were aged between 20 and 34 years old, had borne their first children, were in stable relationships, and had at least 12 years of education. They had access to adequate prenatal care, delivery and postpartum care, as recommended by the Brazilian Health Ministry [*Ministério da Saúde*] (MS). The main reported complaint: pain. A large number of women sought the service for guidance on breastfeeding as well. The profile of the attended women is similar to that of nursing mothers from other studies. Lack of orientation was one of the main motivations for them to resort to the service, a factor that can be changed by the strengthening of public policies for an adequate follow-up throughout prenatal care.

Keywords: human milk bank; breastfeeding; health services.

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Introduction

BF is considered the best natural strategy when it comes to bonding, love and nutrition for a child, in addition to being the most sensible, effective and affordable intervention to reduce child morbimortality (Health Ministry [MS], 2009; 2012). Due to the presence of numerous protecting factors in breast milk, exclusive breastfeeding (EBF) is recommended until the sixth month of life, and BF supplemented with other foods is recommended until 2 years of age or more (MS, 2012; Figueiredo, Bueno, Ribeiro, Lima, & Silva, 2015). In the late 1970s, measures aimed at promoting the health and nutrition of nursing mothers and infants in early childhood were established by the World Health Organization (WHO) and the United Nations Children’s Fund (UNICEF). They recommend that every healthcare system should ensure guidance to all mothers in order to guarantee “[...] the maintenance of breastfeeding for as long as possible, and that all obstetric and prenatal care procedures should be compatible with the BF promotion and support policy” (Lima, 2003, p. 306).

In Brazil, in the late 1930s, breast milk collection services started to emerge, an “HMB” model. The first one was implemented in October 1943, at the old National Childcare Institute, in Rio de Janeiro. It has as main purpose the collection and distribution of human milk for newborns in special conditions (preterm, malnourished or allergic infants). (Vieczorek, 2010; Nobrega, 2011; National Sanitary Surveillance Agency (*Agência Nacional de Vigilância Sanitária* [ANVISA], 2008).

In 1981, as a result of the implementation of the National Breastfeeding Incentive Program (*Programa Nacional de Incentivo ao Aleitamento Materno* [PNIAM]) and the Children’s Comprehensive Healthcare

Program [*Programa de Assistência Integral a Saúde da Criança*] (PAISC), HMBs had an expressive presence (Ordinance No 322, 1988). In 1984, the Brazilian government launched the Women's Comprehensive Healthcare Program (*Programa de Assistência Integral a Saúde da Mulher* [PAISM]), which had as one of its objectives to raise BF rates. It stimulated the development of activities during prenatal care, delivery and immediate childcare. It also recommended stimulating practice by promoting lactation whenever possible still in the delivery room and in the collective nursing room. (ANVISA, 2008).

From 1943 to 1985, HMBs in Brazil operated with the sole purpose of collecting and distributing human milk in order to meet the needs of preterm newborns. (Vieczorek, 2010). In 1984, they became a reason for concern to the PNIA due to their disorderly proliferation, without compliance with uniform objectives and procedures; among other facts, there were reports of human milk buying and selling, exchange for food, and lack of product quality control (Nobrega, 2011).

As a result of the government's concern with these institutions, Ordinance No 322 was enacted (1988), which comprehended all steps for the implementation and operation of Human Milk Banks and made Brazil the first country to have such a legal device. It defines HMBs as a "[...] specialized service mandatorily linked to a maternal and/or child care hospital" (Ordinance 322, 1988). It is responsible for BF promotion, protection and support, providing specialized care to nursing mothers who have difficulty breastfeeding, in addition to being responsible for the execution of activities involving the collection of milk surplus production from nursing mothers and, by means of processing and quality control, the storage and distribution of collected milk (ANVISA, 2008). They are not meant for profit, and selling its products is prohibited. (Ordinance 322, 1988; ANVISA, 2008).

In 1998, the Brazilian Human Milk Bank Network [*Rede Brasileira de Bancos de Leite Humano*] (rBLH-BR) was created as an initiative of the MS and Oswaldo Cruz Foundation (*Fundação Oswaldo Cruz* [FIOCRUZ], 2017), with the mission of promoting, protecting and supporting BF, as well as collecting and distributing human milk with certified quality and helping reduce child mortality. Said network is a strategic action of the National Breastfeeding Policy, encouraging HMBs to, besides collecting, also process and distribute human milk for preterm and underweight newborns, in addition to providing guidance on and support to BF (Vieczorek, 2010). Currently, Brazil has the largest milk bank network in the world, with 219 units distributed in all states of the national territory, some with domicile collection, and another 191 collection stations. The national reference and articulating center is FIOCRUZ's HMB, located in Rio de Janeiro.

According to FIOCRUZ (2017), Minas Gerais counts today with 12 human milk banks and 26 collection stations. Minas Gerais' oldest HMB still in operation was opened on October 19th, 1986, by means of a partnership with the extinct Brazilian Assistance Legion [*Legião Brasileira de Assistência*] (LBA) and MOV. The implementation of this milk bank came as an important foundation to improve the nutrition of neonates in Belo Horizonte and in the metropolitan area.

In 1999, MOV's HMB was recognized by the MS and by the State Health Secretariat as a reference service in Minas Gerais, embracing the commitment of instructing, training and advising all institutions interested in implementing HMBs and collection stations. In 2004, the Brazilian Human Milk Bank Network also recognized MOV's HMB as the Reference Center for milk banks in the state. In 2015, during the 2nd Forum for International Cooperation of Human Milk Banks and National Seminar on Breastfeeding, MOV's HMB was certified with Gold Standard for its performance (FIOCRUZ, 2017).

Protagonist in BF promotion in Minas Gerais, MOV's HMB carries out approximately 1,400 services every month, assisting pregnant women, nursing mothers and their babies, besides organizing household visits for human milk collection and promoting mother groups. MOV's HMB manages to collect, by month, around 250 to 300 liters of raw human milk, in addition to attending to preterms in the maternity hospital itself or those in affiliated hospitals.

This service covers BF complications (engorgement, mammary traumas, mother/baby training, adoptive lactation, puerperal mastitis); pediatric care for babies of nursing mothers and who were admitted to a kangaroo nursing room at MOV; 'Pregnant Couple' course (monthly and free of charge, open to the public); educational meetings for mothers of preterm babies admitted to MOV's neonatology ward; training for health professionals in breastfeeding counselling and clinical management; household visits for breast milk collection; collection, processing, quality control and distribution of pasteurized human milk, following criteria of the National Reference Milk Bank; counselling, training, enhancement and development of collection stations and milk banks in the state of Minas Gerais, which is also an internship field for several students.

In 2016, MOV's HMB was responsible for 5.35% of all group services, 37.4% of all individual services, and 20.2% of all household visits in the state. It received 41.4% of human milk donors in the state, and assisted 27.4% of all recipients of pasteurized human milk in Minas Gerais. These numbers show the relevance of this service compared to 25 other similar services spread throughout the state (FIOCRUZ, 2017).

Learning about this population will allow ensuring and improving the conditions and resources necessary for the service, in addition to facilitating the creation of strategies to improve BF support. Moreover, it is possible to enhance the service by placing the focus on users, their demands and needs, raising quality and qualifying assistance.

With MOV's HMB being a reference service in maternal and child healthcare in Minas Gerais, this study aimed to learn about the profile of women who used it within a time scope in 2017.

Methodology

This is a retrospective, descriptive and quantitative study. It was conducted at MOV's HMB, which belongs to Minas Gerais Hospital Foundation [*Fundação Hospitalar do Estado de Minas Gerais*] (FHEMIG), in the city of Belo Horizonte, MG. Data were collected in May, June and July 2018. Service forms recorded in November 2017 were used as data sources. Said month was selected by drawing from the months of 2017. The source of all pieces of data were standardized individual service forms referring to the milk bank. The form is filled out manually by the HMB team for all services they carry out. All instrument variables were analyzed.

The study population included all women attended individually by MOV's HMB in November 2017. The forms of women who abandoned the service, pediatric care and group sessions were excluded.

To better detail the profile of the women who sought the services of MOV's HMB, some variables were categorized into two groups: those who gave birth through a private service, and those who gave birth through a public service; for these cases, charts were built for a better data visualization.

The final sample was composed of 238 forms. Data were organized in a database built with Excel tables, in which frequencies (%) were calculated, and so were mean, mode, median and standard deviation for some items. Data were compiled in tables displaying the absolute values and frequencies for each variable.

This study was submitted to the Research Ethics Committee of Minas Gerais Hospital Foundation and approved with No 2.756.670 and CAAE 91340418.5.0000.5119.

Results and discussion

The study showed the profile of users of MOV's HMB service in Belo Horizonte, Minas Gerais. All collected data are described in the tables below. A total of 238 records were analyzed.

Table 1 brings information on birth place and the total number of visits/services for each woman in the investigated period.

Table 1. Delivery place and number of visits for women attended by MOV's HMB in November 2017.

Variable	N	Frequency (%)
Delivery place	Delivery in public hospital	133
	Delivery in private hospital	96
	Not filled in	7
	Does not apply	2
Number of visits	1 visit	184
	2 or 3	45
	> 4	9

'Does not apply', for the 'delivery place' variable, refers to two visitors who were still pregnant.

Most services were provided to women who gave birth in public hospitals (accounting for 55.9%); as for services to women who borne their babies in private institutions, they accounted for 40.3% of all services. This fact can be explained by the service being located inside a public maternity hospital, with its patients having full access to this type of support. A total of 77.3% of the women visited the service only once. The visit mode was 1, with 1 for median, 1.41 for mean, and 0.62 for standard deviation.

With respect to socioeconomic profile, Table 2 describes that most of the attended women are aged from 25 to 29 years old (19.3%) and 30 to 34 years old (26.5%). The average age stood at 29.5 years old, with standard deviation of 6.36. The mode was 33 years old, while the median was 31. As for marital status at the time of service, 31.1% were single, 59.7% were married, 5.9% were in a stable union, 1.3% were divorced, and 5 forms did not contain this information. A total of 13.4% declared having completed elementary school, 41.6% completed high school, 39.1% completed higher education, and 1.3% had a postgraduate degree. Eleven forms, accounting for 4.6%, did not have this variable filled in. At least 68.9% of them had a gainful occupation. It is worth noting that none of the records had the "Race" criterion filled in, so it was not possible to determine the attended women's race. Concerning the users' origins, 69.7% were from Belo Horizonte, and 19.7% came from different regions.

Table 2. Socioeconomic profile of women served by MOV's HMB in November 2017.

Variable		N	Frequency (%)
Age (Years)	10 - 14	3	1.3%
	15 - 19	29	12.2%
	20 - 24	35	14.7%
	25 - 29	46	19.3%
	30 - 34	63	26.5%
	35 - 39	43	18.1%
	> 40	19	8.0%
Marital status	Single	74	31.1%
	Married	142	59.7%
	Stable union	14	5.9%
	Divorced	3	1.3%
	Not filled in	5	2.1%
Education	Elementary school	32	13.4%
	High school	99	41.6%
	Higher education	93	39.1%
	Postgraduate education	3	1.3%
	Not filled in	11	4.6%
Performs gainful occupation	Yes	164	68.9%
	No	24	10.1%
	Not filled in	50	21.0%
City	Belo Horizonte	166	69.7%
	Metropolitan Area	47	19.7%
	Within the state	21	8.8%
	Other states	1	0.4%
	Not filled in	3	1.3%

Other studies related to breastfeeding have also found very similar age groups for participants (Caminha et al., 2015). Older age groups can be explained in the sense that women nowadays tend to invest more in their education and professional career, leaving motherhood for later.

Caminha et al. (2015) evidenced that, about the profile of women in their study, those who gave birth in a private hospital compared to those who gave birth in a public hospital were older, had a stable marital relationship and reached a higher level of education. Another study on the profile of HBM users conducted in Juiz de Fora, MG, reported that most of the assessed mothers had completed high school or higher education (Afonso et al., 2015), result similar to that of this investigation. Better educated women are understood to be more inclined to comply with BF orientations and practices, and even breastfeed for a longer time. The research carried out in Juiz de Fora also brought as a result that most women in the study were in a stable relationship, which was also evidenced in this study. Table 3 shows the prenatal care provided to the users.

According to findings, 76.1% had at least 06 prenatal care visits, as recommended by the MS (Ordinance 569, 2000). Six prenatal care visits or more had a protective effect on EBF among the mothers in the study by Warkentin, Taddei, Viana, and Colugnati (2013).

Table 3. Prenatal care for women served by MOV's HMB.

Variable		N	Frequency (%)
Prenatal (Number of medical visits)	0	2	0.8%
	1 to 3	3	1.3%
	4 to 6	19	8%
	>6	181	76.1%
	Not filled in	33	13.9%
Prenatal	Public	102	42.9%
	Private	110	46.2%
	Not filled in	27	11.3%
Orientations on breastfeeding	Yes	47	19.7%
	No	135	56.7%
	Does not apply	3	1.3%
	Not filled in	53	22.3%

Regarding prenatal care place, 42.9% had it in a public hospital, while 46.2% had it in a private hospital. One of the patients was provided prenatal care in both places. Only 19.7% claimed having received orientations on BF during prenatal care, against 56.7% who stated not having received any type of guidance on breastfeeding, regardless of whether the service was private or public. This piece of data also shows that, despite easy access to prenatal care service, one of its purposes, which is instructing pregnant women as to BF, did not occur. Machado, Elert, Pretto and Pastore (2014a) corroborate with the result of this research, in the sense that less than half of the participants reported having received some type of information about BF and/or supplementary food during prenatal care visits. In said investigation, the information given at prenatal care visits on breastfeeding and supplementary nutrition had a significant impact on breastfeeding intention. In a study conducted by Afonso et al. (2015), all assessed mothers attended at least 06 visits, and most participants denied having received any instructions on breastfeeding during prenatal care. It is important to highlight that quitting EBF is more frequent among women who have not being guided as to breastfeeding in prenatal care (Machado, Assis, et al., 2014b). In a review developed by Esteves, Daumas, Oliveira, Andrade, and Leite (2014), different indicators concerning access (number of visits) and quality (iron prescription, guidance on breastfeeding, household visit) of prenatal care were identified as factors associated with the opportune start of breastfeeding.

Encouraging breastfeeding during gestation is proven to have a positive impact on BF prevalence, especially among primiparas, with prenatal follow-up being an excellent opportunity to motivate women to breastfeed (MS, 2009).

Table 4 shows the women's obstetric profile.

According to data found in this study, 76.9% of the women attended by the HMB were primipara, and the number of pregnancies presented mode of 1, median of 1, mean of 1.67, and standard deviation 0.86. As for type of delivery, 48.3% had normal birth, and 45.8% had c-sections; 2 users had not yet gone through delivery. A total of 33.6% had 1 or 2 days of postpartum period, and 22.7% had 3 to 5 days. A total of 21.8% had 10 to 45 days.

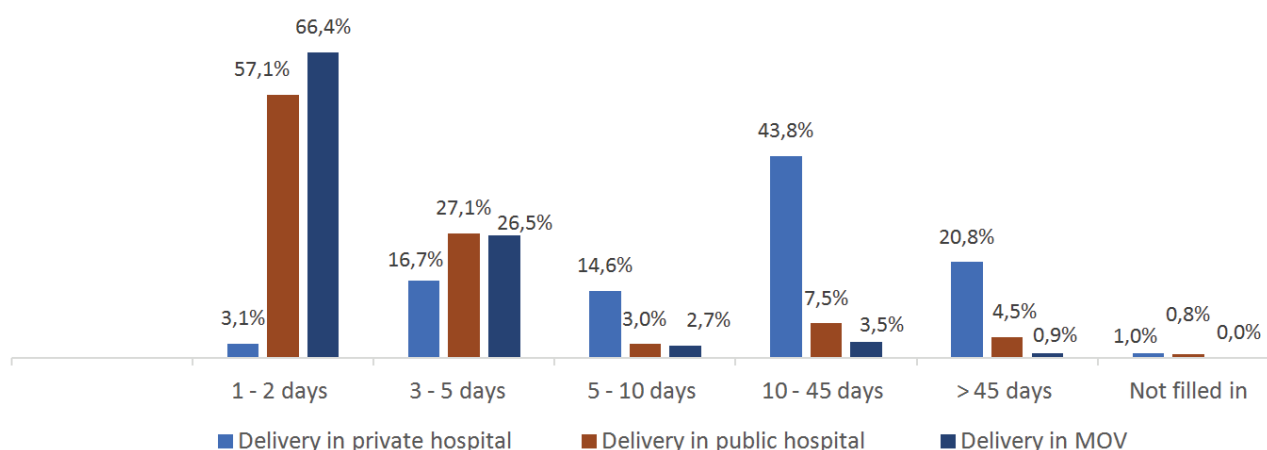
Postpartum period in days presented mode of 1 day, median of 4 days, mean of 25.36 days, and standard deviation of 32.36 days, showing the range of this variable in the sample. A total of 76.5% of the babies of mothers who sought the service were born with adequate weight, and mode of 3400 g, median of 3095 g, mean of 3037.86 g, and standard deviation of 455.72 g. A total of 83.6% had a term delivery (mode of 39 weeks, median of 39 weeks, mean of 38.28 weeks, and standard deviation of 1.65).

Esteves et al. (2014) related c-section with not breastfeeding in the first hour of life, which is therefore a negative factor for the success of breastfeeding. In another investigation, this correlation was not statistically significant (Pereira-Santos et al., 2017). Just as in other studies, most mothers in this research (80.9%) said to be having their first gestation.

Table 4. Obstetric profile of women served by MOV's HMB in November 2017.

Variable		N	Frequency (%)
Gestations	1 to 2	183	76.9%
	3 to 4	39	16.4%
	>5	7	2.9%
	Not filled in	0	0%
Type of delivery	Normal	115	48.3%
	C-section	109	45.8%
	Not filled in	12	5%
	Does not apply	2	0.8%
Postpartum period (Days)	1 to 2	80	33.6%
	3 to 5	54	22.7%
	5 to 10	19	8.0%
	10 to 45	52	21.8%
	> 45	29	12.2%
	Not filled in	2	0.8%
	Does not apply	2	0.8%
Birth weight (Grams)	<1000	1	0.4%
	1001 to 1500	8	3.4%
	1501 To 2500	22	9.2%
	2501 To 4000	182	76.5%
	> 4001	6	2.5%
	Not filled in	17	7.1%
	Does not apply	2	0.8%
Birth age (Weeks)	22-30	7	2.9%
	31 - 36	17	7.1%
	37 - 42	199	83.6%
	Not filled in	13	5.5%
	Does not apply	2	0.8%

Figure 1 shows the postpartum period in which the women were at the time of service in the HMB.

**Figure 1.** Postpartum time of women served by MOV's HMB in November 2017, by delivery place.

These data show that those women who had their babies in a private hospital sought the service mainly from the 3rd to the 5th day after delivery, and most sought it between the 10th and the 45th days. As for those who gave birth in a public hospital, they resorted to the service 1 to 2 days, and 3 to 5 days after birth. This can be explained by the fact that the women who gave birth in a public hospital, with most deliveries happening at MOV (84.9%), sought the service while still in the maternity hospital (around 1 to 2 days of postpartum period), and this is less frequent in longer postpartum periods.

The obstetric care received by the women during delivery and the postpartum period is described in Table 5.

Table 5. Postpartum care provided to women served by MOV's HMB in November 2017.

Variable		N	Frequency (%)
Collective nursing room	Yes	180	75.6%
	No	35	14.7%
	Not filled in	17	7.1%
	Does not apply	6	2.5%
Skin-to-skin	Yes	170	71.4%
	No	52	21.8%
	Not filled in	10	4.2%
	Does not apply	6	2.5%
Breastfeeding in the delivery room	Yes	111	46.6%
	No	111	46.6%
	Not filled in	10	4.2%
	Does not apply	6	2.5%

It is possible to observe that 75.6% of the mothers stayed in a collective nursing room with their NBs, against 14.7% who did not. A total of 71.4% engaged in skin-to-skin contact, while 21.8% reported not having done that. Only 46.6% were stimulated and breastfed in the delivery room. This piece of data is important because, in the BF promotion context, the WHO recommends putting babies into direct contact with their mothers soon after birth for at least an hour, and encourage mothers to start breastfeeding as soon as the baby is ready. Starting breastfeeding in the first hour of life is associated with a longer BF period (Esteves et al., 2014); besides, the stay in a collective nursing room comes as a response to the legislation, strengthening a recommendation of the MS intended to protect BF (MS, 2009).

Table 6 shows that, among the attended women, 92% were breastfeeding at the time of the service. A total of 2.9% fitted the 'does not apply' criteria due to these reports: death of the newborn, extreme preterm, baby not yet born.

Table 6. Breastfeeding history of MOV's HMB users in November 2017.

Variable		N	Frequency (%)
Currently breastfeeding	Yes	219	92%
	No	12	5%
	Does not apply	7	2.9%
Previous breastfeeding (Months)	No	16	6.7%
	Less than 4 months	8	3.4%
	4 months	1	0.4%
	6 months	5	2.1%
	6 to 12 months	12	5%
	> 12 months	16	6.7%
	Does not apply	161	67.6%
Free demand	Not filled in	15	6.3%
	Yes	149	62.6%
	No	42	17.6%
	Not filled in	41	17.2%
Pacifier	Does not apply	6	2.5%
	Yes	70	29.4%
	No	107	45%
	Not filled in	55	23.1%
Bottle	Does not apply	6	2.5%
	Yes	46	19.3%
	No	131	55%
	Not filled in	55	23.1%
EBF	Does not apply	6	2.5%
	Yes	119	50%
	No	90	37.8%
	Not filled in	23	9.7%

Because most women were primiparas, most of them (67.6%) had never breastfed before. Also, among those who had already had children, 6.7% said they did not breastfeed.

As for the baby's nutrition, 62.6% reported being breastfeeding on free demand, while 17.6% were not. A total of 45% were not using pacifiers, and 55% were not using bottles. Besides, 50% claimed to be in EBF. In other investigations, primiparity is associated with greater difficulty in breastfeeding (Pereira-Santos et al.,

2017; Warkentin et al., 2013).

Afonso et al. (2015) reported in their study that, at the time of the interview, most mothers (61.7%, 29/47) were using EBF as a means to feed their NBs. Both in the described research and the present study, the prevalence found fall short from the ideal of 100%, according to WHO classification. In Flores et al. (2017), EBF was reported only in 20.5% in the preconized age group. The WHO recommends EBF until the sixth month of life, and its supplementation until two years of age or more (Machado et al., 2014b). EBF is more frequent among better educated individuals; on the other hand, this is the group that most frequently interrupts EBF early (Flores et al., 2017).

The literature brings correlations between use of artificial nipples and EBF or breastfeeding difficulties. Younger women, primiparas and users of private services gave their babies artificial nipples more often. (Warkentin et al, 2013; Buccini, Benício, and Venancio, 2014). Buccini et al. (2014) showed that most pacifier users were younger, primipara mothers of low socioeconomic level and less educated. Pacifier use was the main factor associated with EBF interruption occurrence identified in studies developed by Pereira-Santos et al. (2017).

Bottles may have a negative influence on breastfeeding. Some children, after trying bottles, may have trouble sucking on breasts. Some authors call this difficulty "nipple confusion", generated by the difference between the way of sucking on a real nipple and on a bottle. (MS, 2009). Introducing bottles and pacifiers may cause a confusion in the newborn's sucking reflex and delay the establishment of lactation (Borelli, Domingos, Domene, Taddei, & Lopez, 2009).

When it comes to complaints and reasons for women to resort to the service, most patients had more than one. Table 7 compiles the main complaints and how many times each one of them occurred.

Table 7. Main complaints reported by women served by MOV's HMB in November 2017.

Complaint	N	Frequency (%)
Pain	62	26.1%
Hold	36	15.1%
Full breasts	50	21%
Little milk	16	6.7%
Fever	7	2.9%
Wound	55	23.1%
Orientations	156	65.5%
Taking milk out	18	7.6%

Among the 238 analyzed forms, the pain complaint appeared 62 times, accounting for 26.1%. Problems with the baby's hold appeared 36 times (15.1%), full breasts, 50 times (21%), wounded breasts, 55 times (23.1%), and the most frequent motivation for seeking the service was requests for guidance on breastfeeding, which appeared in 156 forms, accounting for 65.5%.

Afonso et al. (2015) reports that most interviewees (40/47) resorted to the HMB due to breastfeeding problems, with pain while breastfeeding being the main problem identified.

According to the Health Ministry (MS, 2009), the main complaint of women about breastfeeding is pain and wounded nipples. This symptom is common but not normal and requires intervention. The most common cause of pain while breastfeeding is wounds on the nipples due to inadequate position and hold, prolonged non-nutritive sucking, breast pump misuse, application of creams and oils that cause allergic reactions on the nipples, use of nipple shields (intermediate), and prolonged exposure to moist lining. All these issues can be solved with proper guidance. As for the "little milk" or "weak milk" complaint, it is associated with the mother's insecurity (MS, 2009), an event that can be explained by the fact that most women who sought the service were primipara and had little or no breastfeeding experience.

Conclusion

Forms not fully filled out was a limiting factor for the analysis.

The profile of the women served by MOV's HMB is similar to that of those served by similar services.

Lack of guidance was one of the main motivations for them to seek the service. This factor is believed to be changed through the strengthening of public policies for an adequate follow-up during prenatal care, with more incisive actions towards EBF promotion.

The services provided by MOV's HMB go far beyond collecting and processing human milk. They are a distinct resource that is valued by the women who benefit from them, along with their families.

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