

Prevalence of breastfeeding and birth practices during the first wave of the COVID-19 pandemic within the Italian Baby-Friendly Hospital network. What have we learned?

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Abstract

Background. At the beginning of the COVID-19 pandemic, healthcare workers were faced with difficult decisions about maternity care practices. The evidence-based practices recommended by the WHO/UNICEF Baby Friendly Hospital Initiative (BFHI) were confirmed by Italian national guidance.

Aim. To describe, in a number of facilities that are part of a national Baby-Friendly network, the adherence to some steps of BFHI standards during the COVID-19 emergency.

Methods. We conducted a cross-sectional online survey, inviting all hospitals interested in the Initiative, to fill out a semi-structured questionnaire.

Results. Out of the 68 participating hospitals, 30.9% were hubs and 69.1% spokes. During May 2020, 61.8% of hospitals had COVID-19 and non-COVID-19 clinical pathways, while 38.8% were only non-COVID-19. None was dedicated exclusively to COVID-19 pathways. The BFHI was effective in guaranteeing $\geq 80\%$ exclusive breastfeeding, the presence of companion of mother's choice, skin-to-skin and rooming-in. The type of accreditation was associated with the presence of a companion of the mother's choice during labour ($p=0.022$) and with skin-to-skin ($p<0.001$). According to the narratives, increased interpersonal distance made interactions with mothers difficult and the absence of a birth companion was reported as a major issue.

Discussion and conclusions. The BFHI is a highly-structured, evidence-based care model. Investing in strong collaborative care approaches contributes to hospitals' preparedness.

Key words

- baby-friendly initiative
- baby-friendly hospitals
- breastfeeding
- COVID-19
- skin-to-skin contact
- rooming-in

INTRODUCTION

During the initial phase of the COVID-19 pandemic when international and national guidelines were either

conflicting or non-existent, Italy was the hardest-hit country in Europe [1], and healthcare workers were faced with difficult decisions about maternity care

practices in the absence of consolidated guidelines for women with suspected or confirmed COVID-19 infection. Both the World Health Organization [2] and the United Nations Children's Fund [3] published interim guidance in early March recommending that mothers continue breastfeeding according to standard infant feeding guidelines, using precautions for infection prevention and control (IPC). This interim guidance confirmed the importance of the evidence-based practices outlined in the WHO/UNICEF Baby Friendly Hospital Initiative (BFHI) [4]. These included having a companion of the mother's choice (CMC) present at the birth, holding her baby skin-to-skin immediately after birth, breastfeeding and rooming-in with her baby within arms' reach, and were summarized through a series of WHO infographics and frequently asked questions for health care workers published at the end of March 2020 [5, 6]. In the same period, the Italian National Institute of Health (Istituto Superiore di Sanità – ISS) organized and coordinated an initiative to examine and disseminate the updates of the scientific literature on COVID-19 in pregnancy, childbirth and breastfeeding that involved the major national scientific organizations: the Italian Society of Neonatology (SIN), the Italian Society of Perinatal Medicine (SIMP), the Italian Society of Pediatrics (SIP), the Associazione Culturale Pediatri (ACP), the Association of Italian Hospital Obstetricians and Gynecologists (AOGOI), the Association of Italian University Gynecologists (AGUI), the Italian Society of Anesthesiology and Intensive Care Medicine (SIAARTI), and the National Federation of Midwives (FNOPO) [7]. The objective was to provide national clinical practice guidance for health professionals caring for pregnant women and assisting during labor and delivery, and disseminate it through scientific webinars for health providers and infographics for the general population [8].

From 27th February to 7th May 2020 the updates were published weekly on the EpiCentro website of the ISS [9]. The Italian National Center for Disease Prevention and Health Promotion (CNaPPS) of the ISS was responsible for querying PubMed, Scopus, Embase and CINAHL databases for available literature on studies of any design and published in any language beginning in January 2000. It was also responsible for finding and reviewing literature and documents on COVID-19 in pregnancy, childbirth and the puerperium produced by international government agencies and specialist scientific societies. At the end of May, the ISS published "Interim indications for pregnancy, childbirth, breastfeeding and the care of very young children 0-2 years in response to the COVID-19 emergency", and a subsequent update at the beginning of February 2021 [10].

During those months, the Italian National Committee for UNICEF (UNICEF Italy), which is responsible for the BFIs in Italy, including the BFHI, the Baby-Friendly Community Initiative (BFCI) and Breastfeeding-Friendly University Program Initiative (BFUP), was collaborating on translating and/or disseminating information from these sources [2, 3, 5], as well as organizing webinars to offer support and opportunities for networking and sharing solutions for main-

taining Baby-Friendly standards. All hospitals, community health services and university programs that were Baby-Friendly accredited or in the accreditation process were invited to participate in the free weekly or biweekly webinars to create the conditions for knowledge sharing and exchange of experiences, documents and procedures.

At that time, information was missing on how hospitals were dealing with the emergency, what practices had been adopted for maternal and newborn care (i.e., skin-to-skin at birth, rooming-in, breastfeeding, presence of a companion of mother's choice), if and how Baby-Friendly Hospitals (BFHs) were applying the BFHI standards and what were the main barriers and facilitators.

In this scenario, our study, undertaken by the CNaPPS-ISS and UNICEF Italy, aimed to describe, in a number of facilities that are part of a national Baby-Friendly network: 1) the adherence to some steps of BFHI standards during the COVID-19 emergency; 2) the differences in adherence to the recommended practices by BF accreditation; 3) how practices changed and what the challenges and strengths in applying some of the steps of the BFHI were.

METHODS

Design

The study was a cross-sectional online survey.

Setting and relevant context

The BFHI is a strategy launched by WHO and UNICEF to protect, promote, and support breastfeeding in maternity facilities [11]. Several investigators have found that BFIs have a positive impact on breastfeeding rates and outcomes [12, 13]. In Italy, the BFHI and BFCI are promoted together by UNICEF Italy as "Together for Breastfeeding: Baby-Friendly Hospitals and Communities – United for protecting, promoting, and supporting breastfeeding" [14].

Sample

All the accredited Baby-Friendly Hospitals (n 30), those in the process of accreditation (n 22), those who had sent the online manifestation of interest for the Italian Baby-Friendly Initiative (n 54) were invited to participate to the study. The BFHI accreditation process involves a three-staged series of assessments regarding the facility's policies and procedures, staff training on the BFHI steps, and interviews with mothers and pregnant women to ensure they are receiving care consistent with BFI standards. Passing all three assessments leads to BFH accreditation. Facilities that have officially enrolled in the process and are working with a UNICEF tutor are considered "in the process of becoming a BFH", while those who have compiled an online form requesting information about accreditation are considered "interested in becoming a BFH".

Measurement and data collection

An online semi-structured questionnaire was used, based on the BFHI standards that were most negatively impacted during pandemic (e.g., presence of a CMC,

skin-to-skin contact, rooming-in 24/7 with the infant within arms' reach). The tool consisted of 65 qualitative items and was divided into 6 sections. The first provided information on the hospital, the prevalence of exclusive breastfeeding (EBF) and hospital organization and services during the pandemic. The other 4 sections included items on provision of care in vaginal births and caesarean sections (CS) to women who were SARS-CoV-2 positive and negative. The last section assessed the perceived evolution of practices during pandemic and included some open-ended items on professionals' opinions. The questionnaire also included questions to evaluate how the guidance provided by the CNaPPS-ISS and UNICEF Italy was used to support clinical practice. At the end of the questionnaire, there was a space for a contact person's email or telephone address, in case of incomplete answers. Ethical approval was obtained from the Ethics Committee of the Italian National Institute of Health (Protocol n AOO-ISS 14/05/2020 0017295). The respondents were informed of and agreed to the use of anonymous data in accordance with Italian and European Data Protection legislation.

The study was conducted between May and July 2020 and the questions referred to the period March-April 2020. Only one questionnaire was permitted for each hospital. The respondent, usually the reference person for the BFHI, replied on behalf of the hospital. A letter of invitation to participate in the survey, explaining the purpose of the survey and giving information on its compilation, was sent via the UNICEF BFI Network. Before sending invites to all hospitals, our team tested the survey with three respondents whom we recruited from three hospitals not included in the survey. This test aimed to assess the functionality and clarity of the questions and was useful for rewording some of them. Follow-up contacts with respondents were carried out during June and July 2020 to obtain missing data and improve the quality of information.

Data analysis

Categorical variables of greater interest were reported as frequency and percentage, continuous variables were summarized by median and interquartile range (IQR). Bivariate analysis was performed by creating two main categories, according to an increasing level of engagement in the BFHI. Accredited BFHs and those in the process of BFH accreditation (having successful-

ly passed stage one of UNICEF evaluation) were compared to hospitals interested or "other" categories using the chi-square test. Statistical analyses were conducted using SPSS v. 26. Significance was set at a p -value < 0.05 . Open-ended questions were treated for qualitative categorical analysis. Two researchers separately coded the narratives on an inductive basis, according to emerging categories, and created a shared codebook. The coding process was done using NVivo 12 software.

RESULTS

Quantitative results

At the time of the survey, the Italian Baby-Friendly Hospital Network was composed of 30 accredited BFHs, 22 BFHs working toward accreditation, and 54 that had expressed interest in working to become BFHs in the past five years (Table 1).

Sixty-eight hospitals, mainly from northern Italy, participated to the survey. Of these, 38.5% ($n = 26$) were accredited BFHs, 20.6% ($n = 14$) were in progress, 32.4% ($n = 22$) had expressed interest toward the accreditation process in the previous five years, 8.8% ($n = 6$) had expressed interest before 2016 (coded as "other"). The respondents' geographical distribution was consistent with the Italian BFH network: 26.5% northwestern Italy, 36.8% northeastern, 29.4% central, 4.4% southern, 2.9% islands (Figure 1).

In 2019, the total number of births in the participating hospitals was 77,088, with a median value of 925 (range 78-5,400), including some small and highly specialized services (e.g., only for births of newborns needing cardiac surgery). According to the level of intensive care, 30.9% of hospitals were hubs (higher) and 69.1% spokes (lower). During the month of May 2020, 61.8% of hospitals had both COVID-19 and non-COVID-19 clinical pathways, while 38.8% were only non-COVID-19. None of the hospitals was dedicated exclusively to COVID-19 clinical pathways.

In the middle of the first wave of the pandemic in March 2020, the number of health personnel was the same in 72.1% of health facilities, 17.6% had had a reduction in personnel, while 5.9% had increased the workforce. At the time of the survey data collection, 88.2% of healthcare facilities tested all pregnant women at hospital admission for SARS-CoV-2 using a nasal swab. During the lockdown, up to the beginning of May 2020, online prenatal group meetings were offered by community services (Consultori Familiari) in

Table 1

Composition of the Italian BFH Network and Hospital enrolled in the survey in March-April 2020

		Accredited BFH (n)	In progress (n)	Interested (n)	Other (n)
BFH Italian Network (n 106)		30 (28.3%)	22 (20.8%)	54 (50.9%)	–
Hospitals enrolled in the survey (n 68)		26 (38.2%)	14 (20.6%)	22 (32.4%)	6 (8.8%)
Level of intensive care	High (HUB)	6 (23.1%)	3 (21.4%)	10 (45.5%)	2 (33.3%)
	Low (SPOKE)	20 (76.9%)	11 (78.6%)	12 (54.5%)	4 (66.7%)
COVID-19 clinical pathway (COVID-19+/non-COVID)	Both	18 (69.2%)	8 (57.1%)	13 (59.1%)	3 (50%)
	Non-COVID-19 only	8 (30.8%)	6 (42.9%)	9 (40.9%)	3 (50%)

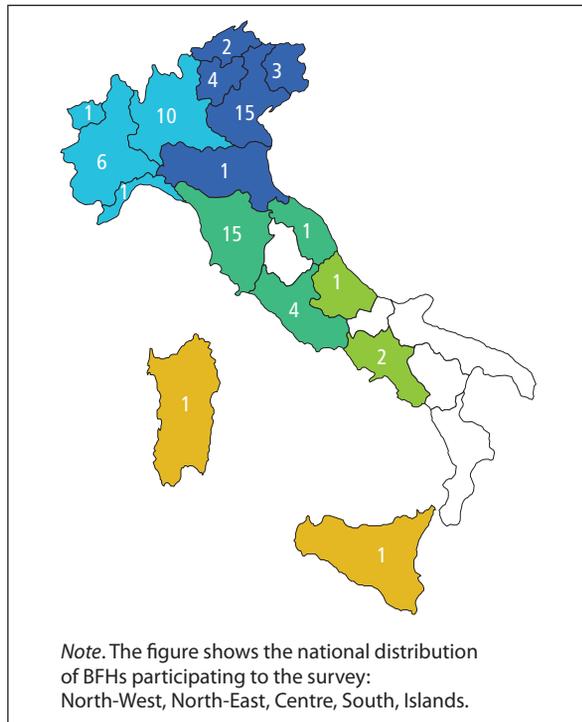


Figure 1
Distribution of participating hospitals.

27.9% (19/68) of cases, in 17.6% (12/68) by hospitals, in 13.2% (9/68) by integrated hospital and community services, 11.8% (8/68) by others (e.g., individual video calls using instant messaging applications for smartphones where no web applications for computers were available), mother-to-mother support associations independently (1.5%, 1/68) or integrated with community services (1.5%, 1/68). Among the 68 health facilities, 25.0% (17/68) had stopped all prenatal group support or educational activities, whether online or face-to-face. After hospital discharge, support group meetings via web were offered in 25.0% of cases by community services (17/68), in 11.8% by hospitals (8/68), in 13.2% by others (9/68), in 4.4% were integrated hospital and community services (3/68), in 1.5% (1/68) by mother-to-mother support associations independently or integrated with the community services (1.5%, 1/68). Among the 68 health facilities, 32.4% (22/68) had stopped all types of postnatal group support or education activities, whether online or face-to-face. During the same period, hospital respondents reported that individual support after birth was offered by a midwife at home ($n = 12$), at a community clinic ($n = 29$) or via web ($n = 15$). The family pediatrician, which every baby in Italy is entitled to as a part of the National Health Service, was available for a home visit ($n = 5$), in a community clinic ($n = 17$) or via web ($n = 4$). The lengths of hospital stay in non-COVID-19 care pathways ($n = 68$) were either 1-2 days (50.0%) or 3-4 days (50.0%) for vaginal birth. After a CS, 16.2% (11) of facilities kept mothers for 1-2 days, while 79.4% (54) did for 3-4 days and 4.4% (3) ≥ 5 days. In the facilities with clinical pathways for COVID-19

positive women ($n = 42$), 4.8% (2) of hospital discharges occurred within 24 hours after vaginal births, 35.7% (15) at 1-2 days, 40.5% (17) at 3-4 days and 19.0% (8) ≥ 5 days. In COVID-19 positive women with CS ($n = 42$), hospital stays were generally longer: only 14.3% (6) were discharged at 1-2 days, 61.9% (26) at 3-4 days and 23.8% (10) stayed ≥ 5 days.

EBF prevalence is reported only for those facilities that were accredited BFHs and provided all the required data: yearly data for 2019, monthly for March and April 2020. This choice was driven by the need to present data collected according to international standards [15]. Figure 2 shows the prevalence of EBF in BFHs dedicated both to COVID-19 and non-COVID-19 clinical pathways or only non-COVID-19. The EBF prevalence is represented in relation to the 80.0% prevalence standard required by the WHO/UNICEF accreditation system.

In 2019, most of the BFHs, except for 2, presented an EBF rate above 80.0%. During the first wave of the pandemic, in March 2020, 9/15 had an EBF prevalence $\geq 80.0\%$ while in April 2020, 11/15 were compliant with the BFH standard. There was a decrease from 2019 with a median value of 85.0% (IQR 83-88) to March 2020 (median value 82.0%, IQR 76-90), while there was a slight increasing from March 2020 to April 2020 with a median value of 83.0% (IQR 78-90).

In Table 2, the frequencies of different BFI practices are presented, according to the type of BFH accreditation and COVID-19 status.

In accredited BFHs ($n = 18$) women who tested positive to SARS-Cov-2 (COVID-19+) and were asymptomatic or paucisymptomatic could have a CMC during labor in 35.3% (6/17) of cases and 37.5% (6/16) during childbirth. Skin-to-skin contact for at least 1 hour was possible in 43.8% (7/16) of cases, while rooming-in 24 hours a day in close contact was practiced by 100.0% (26/26) of hospitals. When maternal conditions were severe, 1/14 hospitals allowed a CMC during the hospital stay. In CS in COVID-19+ mothers, skin-to-skin contact for at least 1 hour was practiced in 42.9% (6/14) and rooming-in in 100.0% (13/13) of health facilities. One hospital allowed the presence of a CMC inside the operating theatre, even when the mother's conditions were severe, and during the hospital stay.

The type of accreditation (BFH accredited/in progress vs interested/other) showed a statistically significant association with the presence of a CMC during labor ($p = 0.022$) and with the provision of skin-to-skin contact according to the WHO/UNICEF standard of at least one, uninterrupted, hour at birth ($p < 0.001$).

Provision of evidence by ISS and UNICEF

The evidence provided by the ISS through its web portal was known to 89.7% ($n = 61$) of the responding health facilities. Out of these, 55.7% used this evidence to inform their professional practice and clinical protocols, 59.0% for updating the professional team, 47.5% for personal enrichment; 1.6% did not use them and 1.6% did not find this means of provision of care useful for operational purposes. UNICEF updates were known to 88.2% ($n = 60$) of respondents; out of

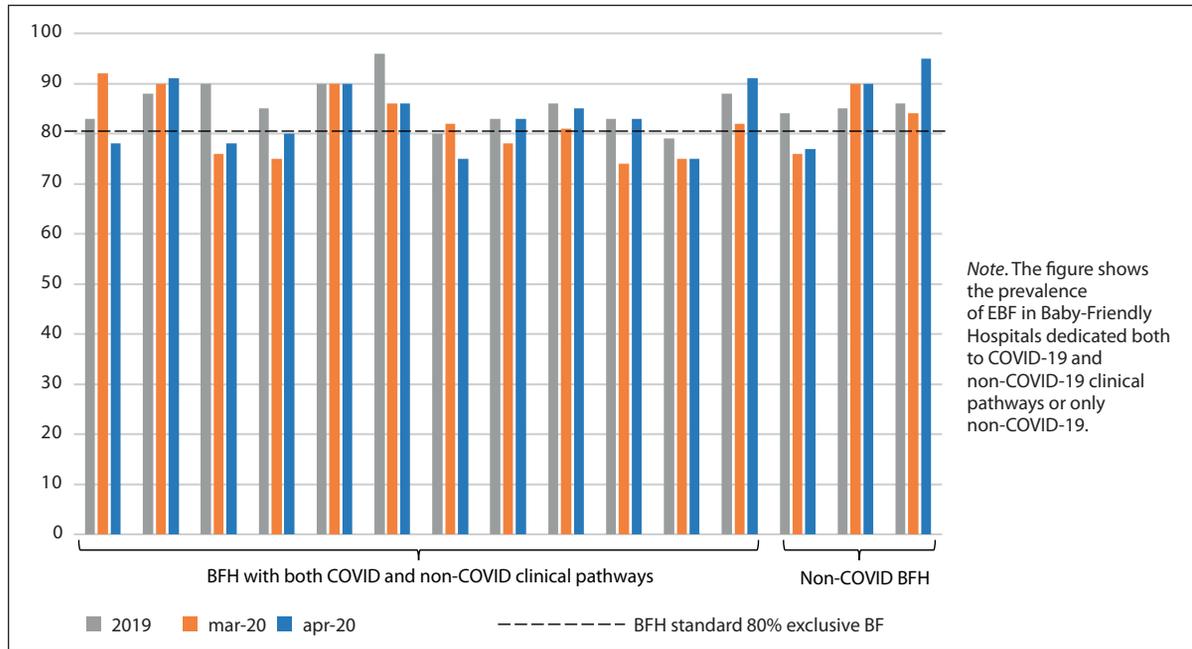


Figure 2
Prevalence of EBF in accredited BFH providing 2019, Mar-2020 and Apr-2020 data.

these, 48.3% used this evidence to inform professional practice and clinical protocols, 70.0% for updating the professional team, 48.3% for personal enrichment; 1.7% did not use them and 1.7% did not find this means of provision of care useful for operational purposes.

Qualitative analysis of the open-ended questions provided by the respondents for the BFH

Two open-ended questions explored how healthcare had changed and what the emerging demands and needs of women, fathers and health professionals were. According to a categorical analysis of the narratives, care provision had become more complex since the beginning of the pandemic, due to several aspects of care, e.g., the need to manage oral swabs and waiting areas, even in the absence of symptoms suggestive of COVID-19, especially in women admitted to a hospital in advanced labor. Wearing and managing Personal Protective Equipment (PPE), together with organizational, logistic and bureaucratic aspects of care, had become more time consuming and took precious time away from direct care to women. Furthermore, the increased interpersonal distance made normal interactions with mothers more difficult as no facial expressions were visible (e.g., smiling). The hospitals where “warmth and affection” were part of normal mother-partner-baby care felt penalized by the need to use PPE, which affected communication and relationships. Healthcare provision rapidly adapted to changing needs, including reinforcing one-to-one care for women who had been isolated from their partners and relatives in a moment where community services were also in transition from in-presence to online provision of support. Nevertheless, mothers’ care was “more standardized, less personalized”. Different communication tools were adopted, such as telephone and video calls, to help women keep

in touch with their relatives. In a time of scarce or controversial evidence, the accredited BFHs attempted to maintain the WHO/UNICEF standards while applying COVID-19 precautions for professionals, mothers, fathers and babies.

Rooming-in increased and most of the newborn care took place in the mother’s room. One COVID-19-hospital where partners were admitted for labor, childbirth and during the hospital stay felt penalized by a significant increase in deliveries by women from other areas, that are normally served by other hospitals.

Hospital discharge was moved up by about 24 hours, both in vaginal birth and CS, and this impacted breastfeeding as hospital professional care was missing in a time where community services were not available, as they were re-organizing from in person to remote support. On the other hand, women themselves were asking to go home as soon as possible when their partners and the baby’s siblings were not allowed to enter and share in the early parenthood experience with them. Another reason to ask for early discharge was fear of contracting the virus during the hospital stay. According to respondents, in some cases, this could have led to early use of formula or failure to recoup EBF, when post-discharge breastfeeding clinics in hospitals and community healthcare services, or peer support groups were not available at that time. In other cases, early discharge, within 24 hours from birth, for non-COVID-19 mothers was accompanied by home visit from a midwife. The absence of a CMC was reported as a major issue for those facilities that did not allow the father/partner access during labor, childbirth or hospital stay. This latter, together with the partner’s absence during antenatal visits, has been described as “devastating”. Women who had a CS complained of an increased difficulty in managing pain as a result of their partner’s absence and the full

Table 2
Frequencies of WHO/UNICEF recommended practices provided by type of BF accreditation

Vaginal birth in non-COVID-19 women (n = 68)	BFH accredited (n = 26)^a	In process (n = 14)^a	Interested/Other (n = 28)^a
Companion of the Mother's Choice (CMC) during labor	25/26 (96.2%)	11/14 (78.6%)	19/28 (67.9%)
CMC during childbirth	26/26 (100%)	14/14 (100%)	25/28 (89.3%)
Skin-to-skin contact (at least 1 hour)	26/26 (100%)	14/14 (100%)	26/28 (92.9%)
24 hrs rooming-in, close contact	26/26 (100%)	14/14 (100%)	27/28 (96.4%)
CMC during hospital stay	17/26 (65.4%)	6/14 (42.9%)	12/28 (42.9%)
Vaginal birth in COVID-19+ women^b (n = 42)	BFH accredited (n = 18)^a	In process (n = 8)^a	Interested/Other (n = 16)^a
CMC during labor	6/17 (35.29%)	4/8 (50.0%)	6/16 (37.5%)
CMC during childbirth	6/16 (37.5%)	5/8 (62.5%)	6/16 (37.5%)
Skin-to-skin contact (at least 1 hour)	7/16 (43.8%)	3/8 (37.5%)	6/15 (40.0%)
24 hrs rooming-in, close contact	13/13 (100%)	7/8 (87.5%)	14/15 (93.3%)
CMC during hospital stay	1/17 (5.9%)	1/8 (12.5%)	2/16 (12.5%)
CMC during hospital stay, if severe conditions of mother	1/14 (7.1%)	0 (0)	1/15 (6.7%)
Caesarean section in non-COVID-19 women (n = 68)	BFH certified (n = 26)^a	In process (n = 14)^a	Interested/Other (n = 28)^a
CMC in operating theatre	8/25 (32.0%)	2/12 (16.7%)	2/25 (8.0%)
Skin-to-skin contact (at least 1 hour)	25/25 (100%)	13/13 (100%)	19/27 (70.4%)
24 hrs rooming-in, close contact	26/26 (100%)	14/14 (100%)	26/28 (92.9%)
CMC during hospital stay	17/25 (68.0%)	6/14 (42.9%)	11/27 (40.7%)
Caesarean section in COVID-19+ women^a (n = 42)	BFH certified (n = 18)^a	In process (n = 8)^a	Interested/Other (n = 16)^a
CMC in operating theatre	1/16 (6.3%)	0/8 (0)	0/15 (0)
CMC in operating theatre, if severe mother's conditions	1/16 (6.3%)	0/8 (0)	0/15 (0)
Skin-to-skin contact (at least 1 hour)	6/14 (42.9%)	2/8 (25.0%)	7/15 (46.7%)
24 hrs rooming-in, close contact	13/13 (100%)	7/8 (87.5%)	13/15 (86.7%)
CMC during hospital stay	1/16 (6.3%)	0/8 (0)	3/16 (18.8%)
CMC during hospital stay, if severe conditions of mother	1/16 (6.3%)	0/8 (0)	2/15 (13.3%)

^a% calculated using as denominator the Yes/No answer, excluding "Other" (e.g. transferred) or "Not applicable".

^bAsymptomatic or paucisymptomatic.

responsibility for taking care of the baby, especially in the first 48 hours. Respondents also reported from their perspective that fathers and partners felt excluded and missed sharing the difficulties and emotions of the first days of their baby's life. Some professionals reported both women and their partners having a sense of solitude and what they called "fear of separation", following the early pandemic restrictions. In health facilities with a higher prevalence of foreign-born women, the absence of the partner compounded communication difficulties and language comprehension issues. Once hospital protocols allowed partners in, this was perceived as a relief for mothers, partners and professionals.

Restrictions to visitors, such as relatives, including grandparents, and friends, was reported as both a strength and a weakness. Women seemed more concentrated on the mother-baby relationship and received less unsolicited advice about motherhood and breastfeeding. Insecurity, anxiety, worry and fear were reported as "new" pandemic-induced feelings that needed to be addressed by health personnel with one-to-one

counselling and clear and consistent information. In the very beginning of the first wave of the pandemic, the baby's safety and protection was a major issue for parents: breastfeeding was perceived as a way to protect the baby, acting as a motivator.

On the other hand, during the very first phases of the pandemic, health professionals experienced fear of contagion, when the evidence on the use of PPE was not clear and the most suitable PPE was out of stock. This quickly changed as women underwent molecular tests for COVID-19 and PPE become available on a large scale. In some cases, a decrease in health personnel was reported, due to forced leave for professionals at increased risk of contagion (e.g., for chronic diseases). The physical, as well as the emotional, workload increased. Health professionals reported "quickly defining clear and shared clinical pathways" as useful, in order to act with "deeper awareness and knowledge". Nevertheless, "we were in a constantly changing process and all of us, mothers, fathers and professionals, lived through this experience with difficulty".

DISCUSSION

To our knowledge, this is the first study assessing how BFHs faced the outbreak of pandemic. The respondents' distribution is consistent with the Italian BFI network, which is concentrated mainly in the northern and the central areas of the country. These data are also consistent with EBF prevalence at 4-5 months of age, whose rates decrease from northern (34.0%-44%), to central Italy (22.4%-40.7%), to southern Italy (16.6%-39.8%) [16, 17]. This geographical distribution is probably due to the combined effect of a stronger investment in breastfeeding policies along with health-care provision and community networks supportive of breastfeeding. Other reasons of these regional differences are various individual and context inequalities [18] and the limited training on breastfeeding by health professionals [19]. Moreover, lack of professional support negatively impacts on breastfeeding outcomes and maternal satisfaction [20-21]. Consequently, the use of breast-milk substitutes is a widespread practice, sometimes already during the hospital stay and at discharge [22]. WHO and UNICEF suggest 80.0% as being the gold standard for EBF at hospital discharge that is the newborn receives only mother's milk [14]. The Italian national, population-based, prospective cohort study ItOSS reports 79.6% of infants receiving any mother's milk, whether exclusive BF, predominant BF or complementary (BF + formula feeding). No data is available on EBF prevalence [23]. In our study, the BFHs were able to comply with the WHO/UNICEF exclusive BF standard even during the first wave of the pandemic.

Given the small sample, it is not possible to make inferences regarding the different practices and their association with the hospital characteristics. However, the prevalence of some practices in accredited BFHs and those in the designation process seems to better comply with WHO/UNICEF standards, especially in provision of care for non-COVID-19 women during the first wave of pandemic, compared to the other facilities. It should be highlighted that accredited hospitals and those "in the process" need to have a structured data collection system on WHO/UNICEF standards, that others hospitals may not have. Data from the BFH network could thus be more reliable. The BFHs have demonstrated the capacity to adapt to the new emerging needs, in times where evidence was scarce, health professionals themselves were worried for the number of contagions occurring in the workplace, and the decision-making process demanded rapid adaption. Some facilities maintained the presence of a CMC during labor, childbirth and post partum, both for COVID-19 and non-COVID-19 mothers. In these hospitals, security measures were increased, e.g., providing antigenic o molecular screening to the partner/caregiver. It should be emphasized that the Italian universal healthcare system promptly extended the tests to caregivers, free of charge. Keeping the mother-newborn dyad in rooming within at arms' reach was a consolidated practice in BFHs, even during the first wave of the pandemic wave, in line with WHO/UNICEF recommendations and national guidelines [10]. The crucial role of a close mother-newborn relationship and the effects of moth-

er-baby separation during the COVID-19 pandemic was described in the CovidMotherStudy, where nearly 60.0% of mothers who experienced separation reported feeling "very distressed" and 29.0% who tried to breastfeed were unable to [24]. The same study showed that infants who were not directly breastfed, did not experience skin-to-skin care, or who did not room-in within arms' reach, were significantly less likely to be exclusively breastfed in the first 3 months, adjusting for maternal symptoms [24]. Early hospital discharge was related both to organization of care and to women's demands to re-join their partners, siblings and relatives. This study focused on hospital practices, so it is not possible to speculate on the effects of early discharge on EBF rate and to mothers' self-confidence; nevertheless, in the qualitative analysis health professionals reported this was a concern.

In February-April 2020, little evidence was available on SARS-CoV-2 transmission according to different birth practices. Since then, "physical distancing" was singled out as one of the main prevention measures. The debate was focused on the importance of maintaining social and emotional closeness while being physically distanced. With the good intention of preventing infection transmission, the "separation paradigm" was applied pervasively to the mother-partner-newborn triad all along the care pathway, negatively affecting their experience of childbirth, the bonding process and early parenthood. This phenomenon is also reported by other studies [25]. Within the BFHs, decision makers and health professionals were urged to keep together what could not be separated, if not at the cost of mental and physical health outcomes affecting both parenting and early child development [26-28]. WHO and UNICEF affirmed the BFH standard as being, still, the most appropriate and effective way to ensure maternal and newborn health, as the benefits of breastfeeding, bonding and closeness outweighed what was subsequently demonstrated to be a low risks of virus transmission [10, 23]. Despite the provision of evidence, respondents in our study reported that COVID-19+ mothers were often left alone during labor and childbirth, were not allowed to bond with their babies and could not be supported by a partner during their hospital stay. The same separation paradigm affected their partners' experience of childbirth, the bonding process and early parenthood. While no official data are available, the experiences of parents and health professionals that were reported directly to the Italian National Institute of Health and UNICEF Italy, as well as through social media, still outline a general exclusion of the partner, women's solitude and newborn separation, especially for SARS-CoV-2 positive mothers and in specific areas of the country. This phenomenon is also reported by other studies [25], and confirms that policy alone is not sufficient, and more efforts need to be enacted to translate policy into clinical practice.

The limitations of this study include the small sample (68 hospitals, mainly based in Northern-Central Italy) and the fact that the high prevalence of BFHs primary outcomes of interest doesn't allow for the comparison of group characteristics. In "ordinary times", more at-

tention would certainly have been paid to the response rate in order to avoid selection bias. We need to go back in time to the first lockdown in the spring of 2020 and remember that, in Italy, hospitals had to completely revolutionize the way they operated, given the shortage of PPE and SARS-CoV-2 tests, and the substantial uncertainty of the available evidence.

CONCLUSIONS

The study explored the prevalence of breastfeeding and birth practices care in pregnancy, childbirth and breastfeeding during the first COVID-19 pandemic wave in some facilities involved in the Italian BFH network. BFHs performed better in some of the WHO/UNICEF standards and according to the Italian national guidance, compared to other hospitals. The BFHI is a structured organizational and clinical model, evidence-based, highly demanding in terms of collaboration, cohesion and creation of a common vision of mother-father-newborn centered care. The authors support the idea that investing in strong collaborative care, including all relevant stakeholders, contribute to the *governance* and *preparedness* which are essential for facing unforeseen situations, such as emergencies. Furthermore, the authors found that COVID-19+ mothers suffered solitude, even in the absence of sound evidence. This confirms that policy alone is not sufficient, and more efforts are needed to translate policy into clinical practice.

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Authors' contributions

AG, EC and FZ conceived and designed the study. FZ and FM acquired the data. AG, FZ and SSA analysed the data. All Authors interpreted the results. AG, EC, FZ drafted the article and all Authors read and approved the submitted version.

Authors' note

Angela Giusti and Elise M. Chapin contributed equally to this study.

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