

# Newly Mothers' Mental Health and Breastfeeding Rates During 2019 Coronavirus Disease Outbreak

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## Research

**Keywords:** 2019 Coronavirus Disease, mothers' mental health, breastfeeding rates

**Posted Date:** September 28th, 2020

**DOI:** <https://doi.org/10.21203/rs.3.rs-78736/v1>

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# Abstract

## Background

Newly mothers are at higher risk of experiencing higher levels of anxiety and stress, especially during a pandemic event. Mothers' mental health can negatively impact breastfeeding rates and the dyad's overall health.

Aim of the study was to determine the prevalence of anxiety symptoms in newly mothers throughout hospital stay during the COVID-19 pandemic and its association with perceived postpartum support and breastfeeding outcomes at discharge.

## Methods

A cross-sectional survey study was conducted in a neonatal tertiary referral center, in northern Italy between April and May 2020 during Italy's lockdown, including a sample of 117 mothers with a negative naso-pharyngeal swab for SARS-CoV-2.

Maternal anxiety levels were assessed through State-Trait Anxiety Inventory-Form Y, with TRAIT-A and STATE-A scores indicating personality trait and current emotional state, respectively. Maternal perception of staff's support was evaluated by the Nurse Parent Support Tool (NPST). Breastfeeding rates at discharge and sociodemographic information were also collected. A STATE-A score  $\geq 40$  was considered indicative of clinically significant symptoms of anxiety. Binary logistic regression models were used to examine correlations between anxiety levels and variables of interest.

## Results

A total of 109 mothers completed the study. Mean STATE-A score was  $\geq 40$  in 42% of mothers and median NPST score was 4.23. A TRAIT-A score  $\geq 40$ , a NPST score  $\leq 4.23$ , father's absence during hospital stay and primiparity were independently associated with a STATE-A score  $\geq 40$  (OR 3.45 (95%CI 1.27; 9.35), 4.72 (1.91; 11.64), 2.73 (1.06; 7.07), 3.74 (1.35; 10.37), respectively). Exclusive breastfeeding rates at discharge were 80% and were not affected by neither mothers' anxiety level nor changes in hospital policies.

## Conclusions

Our study describes the short-term effects on newly-mothers of hospital policies and preventive measures implemented during the COVID-19 pandemic, highlighting the positive impact of fathers' presence and high perceived support during hospital stay on maternal mental health, particularly primiparas'. Breastfeeding rates at discharge were not affected by the pandemic.

## Background

In January 2020, the World Health Organization declared a Public Health Emergency of International Concern as the 2019 Coronavirus disease (COVID-19) was rapidly spreading across countries [1]. Since then, public health systems worldwide have been facing a twin challenge: at first, the main issue was how to address the ongoing tide of critical patients and contain the infection; secondarily, but not less important, efforts were directed towards the management of essential hospital activities during a pandemic event.

In-hospital birth and postnatal care are essential services, and their handling in this peculiar situation put under great pressure maternity wards, which had to suddenly change their organizational and operational policies in order to protect women, newborns, and healthcare professionals, in a novel setting that hardly offered any evidence-based best practice recommendation. Revising hospital policies regarding fathers' presence and external visits became mandatory [2], often leading to the precautionary separation of newly-mothers and newborns from friends, family members, and, in most cases, newborns' fathers too, during hospital stay. As general lockdown and social distancing were proclaimed [3], studies conducted all over the world began to show the impact of these practices on mental health, reporting an increased rate of anxiety symptoms and high stress levels [4].

Pregnant women and newly mothers' well-known increased risk for anxiety and depression exposes them to an even higher risk of psychological distress during a pandemic event [5].

Global guidance on pregnancy and puerperium management during COVID-19 pandemic highlighted the importance of close monitoring of mothers' mental health during hospital stay [2].

The present study aimed to investigate the prevalence of anxiety symptoms in newly mothers throughout hospital stay during the current pandemic event and its association with perceived postpartum support and breastfeeding outcomes at discharge.

## **Methods**

### **Study design**

We performed a cross-sectional study in the postnatal Unit of our Center between April and May 2020, during Italy's lockdown [6]. Our hospital is a neonatal tertiary referral center, covering around 6000 pregnancies per year. It is located in Lombardy, Northern Italy, one of the Italian regions most early and severely affected by the current pandemic [7].

The Institutional Ethics Committee approved the present study, and written informed consent was obtained from all participants.

### **Study population**

Enrollment began on April 7<sup>th</sup>, 2020, and was completed on May 10<sup>th</sup>, 2020. All consecutive mothers admitted to the postnatal Unit during the study period were assessed for eligibility within 48 hours of admission by a registered nurse or a neonatologist not directly involved in the care of the dyad. Inclusion criteria were: adequate oral and written comprehension of the Italian language, absence of underlying maternal or neonatal clinical conditions potentially impeding breastfeeding, a negative nasopharyngeal swab for Severe Acute Respiratory Syndrome coronavirus 2 (SARS-CoV-2), and signed written informed consent. Exclusion criteria were: inadequate oral and written comprehension of the Italian language, underlying maternal or neonatal clinical conditions potentially impeding breastfeeding, contraindications to breastfeeding (e.g., previous mastectomy, drugs incompatible with breastfeeding, chemotherapy), declared intention not to breastfeed, a positive nasopharyngeal swab for SARS-CoV-2, refusal to participate in the study.

Mothers were enrolled within 48 hours of admission and were requested to fill out the questionnaire created for the purposes of the present study during hospital stay, before discharge. Paper-based questionnaires were collected at discharge by a registered nurse or a neonatologist.

## **Newly implemented hospital policies:**

### **Nasopharyngeal swabs**

Consistently with our Center's written protocol, every mother underwent a nasopharyngeal swab upon admission. Samples obtained before 4 pm were processed immediately and results took 6-8 hours to arrive; samples obtained after 4 pm were processed the next day.

### **Fathers and visits**

Our postnatal Unit includes two types of rooms: Italian Public Healthcare System rooms (i.e., rooms paid for by the Italian Public Healthcare System-Servizio Sanitario Nazionale (SSN) –) and private rooms (i.e., paid for by the patients, either directly or through insurance). SSN rooms are double or triple rooms, whereas private rooms are single rooms. Health workers (gynecologists, obstetricians, neonatologists and nurses) who look after mothers and their newborns are the same, regardless of the type of room occupied. Likewise, breastfeeding promotion is offered to all dyads, following the Baby-Friendly Hospital Initiative [8] principles and the World Health Organization/United Nations Children's Fund Ten Steps to Successful Breastfeeding [9].

Since the beginning of the pandemic, visits in the postnatal Unit of our Center have been suspended, both for SSN and private rooms' patients. Fathers' daily and overnight presence has been allowed only in private rooms, in order to guarantee social distancing and avoid gatherings in SSN rooms.

# Rooming-in and Breastfeeding

Rooming-in was allowed for mothers who tested negative for SARS-CoV-2. Following the recommendations of the Italian Society of Neonatology [10], asymptomatic or paucisymptomatic mothers who tested positive for SARS-CoV-2 or were still awaiting nasopharyngeal swab results stayed in a dedicated area of the postnatal Unit with their newborns. Conversely, rooming-in was not allowed for mothers with respiratory infection symptoms or impaired health status who tested positive for SARS-CoV-2 or were still awaiting results. Breastfeeding was recommended to every dyad, regardless of maternal SARS-CoV-2 status, provided that the appropriate mother-newborn infection control measures were implemented.

## Instrument

The questionnaire used for the present study consisted of 4 subsections: 1. Sociodemographic information; 2. Breastfeeding; 3. Nurse Parent Support Tool (NPST); 4. State-Trait Anxiety Inventory-Form Y (STAI-Y). Subsections 1-2 were created by a neonatologist, an International Board Certified Lactation Consultant, a registered nurse and a neonatology resident. The first subsection included multiple-choice questions on maternal age, marital status, level of education, antenatal class attendance, breastfeeding as a topic addressed during antenatal class, mode of delivery, parity, current neonatal mode of feeding. Subsection 2 consisted of 4 questions: 2 multiple-choice and 2 open-ended questions. The first two questions addressed mothers' pre-pandemic (*a priori*) and current intentions regarding breastfeeding. The 2 open-ended questions asked to specify how many months the mother intended to breastfeed or why she had decided not to breastfeed, depending on the answers given to the previous two multiple-choice questions. The NPST [11] is a 5-point Likert scale questionnaire used to assess parents' perception of nursing support received during hospitalization of their infant. The 21 items included in the questionnaire can be divided into 4 categories: Informational Support (9 items), Emotional Support (3 items), Appraisal/Parental Esteem Support (4 items), and Caregiving Support (5 items). Scores for each item range from 1 ("Almost never") to 5 ("Almost always"); higher scores show greater perceived support provided by the nursing staff. For each NPST, a total mean score and a subtotal mean score for each category were calculated.

The STAI-Y[12] is a self-assessment questionnaire commonly used to detect and evaluate anxiety both as a personality trait (TRAIT-A) and as a concurrent emotional state, subsequent to a specific situation (STATE-A). The STAI-Y comprises 40 questions (20/20); all items are rated on a 4-point Likert scale (from "Almost Never" to "Almost Always," or from "Not at all" to "Very much so"). Total scores for each part range from 20 to 80. Higher scores indicate greater anxiety. A score  $\geq 40$  is considered indicative of clinically significant anxiety symptoms [13].

Mothers enrolled were offered the possibility to choose between a paper-based or online questionnaire. The online questionnaire was created using Google Forms (Google LLC, Mountain View, CA, USA) by a

neonatology resident, and a link to the online form was sent to mothers via email from a Google account especially created for the present study. The paper-based and the online questionnaire were otherwise identical. Anonymity was guaranteed through the use of an alphanumeric code each mother was given at enrollment. The questionnaire took approximately 30 minutes to be filled out. Answers to online questionnaires were automatically inserted in an Excel spreadsheet, whereas answers from paper-based questionnaires were manually inserted in the same Excel spreadsheet by a neonatology resident. All data analyzed for the present study were obtained from the questionnaire, except neonatal data, which were retrieved from neonatal computerized medical charts (Neocare, i & t Informatica e Tecnologia Srl, Italy).

## Statistical analysis

Data were analyzed from May 11<sup>th</sup> through May 20<sup>th</sup>, 2020. All participants who completed the questionnaire were included in the analysis. Categorical variables were expressed as numbers (frequencies) and compared between groups using the  $\chi^2$  test. Continuous variables were tested for normality using the Kolmogorov-Smirnov test and expressed as mean (standard deviation) (SD) or median and Interquartile Range (IQR), depending on the normal or non-normal distribution of the variable, respectively. Continuous variables were subsequently compared between groups with the independent samples t-test or non-parametric tests, as appropriate.

Internal consistency of Nurse Parent Support Tool (NPST) and State-Trait Anxiety Inventory–Form Y (STAI-Y) was assessed employing Cronbach's  $\alpha$ .

Univariate binary logistic regression models were used to examine correlations between STATE-A score ( $\geq 40$  vs  $< 40$ ) and variables of interest: TRAIT-A score ( $\geq 40$  vs  $< 40$ ), NPST score ( $\leq 4.23$  vs  $> 4.23$ ), maternal age ( $\leq 35$  years vs  $> 35$  years), parity (primiparous vs multiparous), mode of delivery (caesarean section vs vaginal delivery), marital status (single vs in a stable relationship), maternal education ( $> 13$  vs  $\leq 13$  years), “SSN room” vs “private room”. Univariate binary logistic regression models were further used to examine correlations between exclusive breastfeeding at discharge (yes vs no) and variables of interest: maternal age ( $\leq 35$  vs  $> 35$  years), parity (primiparous vs multiparous), mode of delivery (caesarean section vs vaginal delivery), STATE-A score, ( $\geq 40$  vs  $< 40$ ), TRAIT-A score ( $\geq 40$  vs  $< 40$ ), NPST score ( $\leq 4.23$  vs  $> 4.23$ ), ante-natal class attendance (yes vs no), a priori choice to exclusively breastfeed (yes vs no). Variables significantly associated with the outcome were then fit in multivariable logistic regression models. For analysis purposes, NPST scores and maternal age were divided into two groups according to their median values.

Statistical significance was set at 2-sided  $P < .05$ . Statistical analysis was performed with SPSS version 21 statistic software package (SPSS Inc., Chicago, IL, USA).

## Results

Of 208 mothers assessed for eligibility, 117 were enrolled (Figure 1). Four mothers refused to participate in the study, 87 were excluded based on the exclusion criteria: 56 for inadequate comprehension of the Italian language, 3 for contraindications to breastfeeding (2 previous breast surgeries, 1 current treatment with drugs not compatible with breastfeeding), 1 for personal choice not to breastfeed, 10 for testing positive at nasopharyngeal swab for SARS-CoV-2, 11 for underlying maternal (1 cardiac disease, 1 psychiatric disorder) or neonatal (5 congenital infections, 3 respiratory distress, 1 urogenital malformation) conditions, 5 for not having received the nasopharyngeal swab result at enrollment. Maternal and neonatal sociodemographics of the excluded population did not significantly differ from those of the enrolled population ( $P>.05$ ).

Eight mothers did not complete the questionnaire. The majority of mothers (95%) chose the paper-based modality. The total number of questionnaires analyzed for the present study was 109. The response rate was 93%.

The basic sociodemographic characteristics of the study population are summarized in Table 1. Participants' characteristics were similar between the "SSN rooms" and "private rooms" mothers.

Table 1  
Participants' characteristics.

	Mothers (n=109)	SSN rooms (n=63)	Private rooms (n=46)	<i>P</i> <i>Value*</i>
<b>Age, median (IQR),y</b>	35 (32-38)	35 (32-38)	35.5 (32-39)	.38
<b>Marital status, N (%)</b>				.75
Stable relationship	106 (97)	61 (97)	45 (98)	
Single	3 (3)	2 (3)	1 (2)	
<b>Level of education, N (%)</b>				.35
<=13 years	41 (38)	26 (41)	15 (33)	
>13 years	68 (62)	37 (59)	31 (67)	
<b>Pregnancy, N (%)</b>				
Antenatal class	64 (59)	37 (59)	27 (59)	.99
Primipara	70 (64)	36 (57)	34 (74)	.07
<b>Delivery, N (%)</b>				
Cesarean section	38 (35)	24 (38)	14 (30)	.40
<b>Newborn</b>				
Gestational age, median (IQR), weeks	39 (38-40)	39 (38-40)	39 (38-40)	.75
Birthweight, mean (SD), g	3262.7 (429)	3298 (434)	3212.5 (422)	.31
<b>Mode of Feeding, N (%)</b>				
Pre-pandemic intention to exclusively breastfeed	97 (89)	57 (90)	40 (87)	.56
Exclusive breastfeeding at discharge	87 (80)	54 (86)	33 (72)	.07
<i>Abbreviations: SD, standard deviation; IQR, interquartile range. SSN, Servizio Sanitario Nazionale-Italian Public Healthcare System *SSN vs private rooms</i>				

Exclusive breastfeeding rate at discharge was 79.8% and did not differ significantly between groups.

Both the Nurse Parent Support Tool (NPST) and the State-Trait Anxiety Inventory State – Form Y (STAI-Y) were found to have good internal consistency (Cronbach's  $\alpha$  = 0.96 and 0.93, respectively).

The NPST scores of the enrolled mothers and the comparisons between the “SSN rooms” and “private rooms” mothers are summarized in Table 2. Median NPST total score and median subsection scores did not differ among groups except for caregiving support, which resulted significantly higher in the “private rooms” mothers. Mean TRAIT-A and STATE-A scores of the enrolled mothers are reported in Table 3: TRAIT-A and STATE-A scores were  $\geq 40$  in 30 % and 42% of mothers, respectively. Mean TRAIT-A and STATE-A scores did not significantly differ between the “SSN rooms” and “private rooms” mothers. However, the percentage of “SSN rooms” mothers with a STATE-A score  $\geq 40$  was significantly higher than that of the “private rooms” ones (Table 3).

Table 2  
NPST results.

	Mothers (n=109)	SSN rooms (n=63)	Private rooms (n=46)	P-Value*
<b>MEDIAN SCORE</b>	4.23 (3.3-4.6)	4.04 (3.2-4.6)	4.38 (3.5-4.7)	.75
<b>Informational Support</b>	4.11 (3.2-4.5)	4.00 (3.2-4.5)	4.22 (3.3-4.6)	.15
<b>Emotional Support</b>	4.00 (3.0-4.6)	4.00 (2.6-4.6)	4.00 (3.3-4.6)	.15
<b>Appraisal/ Parental Esteem Support</b>	4.25 (3.2-4.7)	4.00 (3.0-4.7)	4.25 (3.2-4.7)	.75
<b>Caregiving Support</b>	4.60 (4.0-5.0)	4.40 (3.6-5.0)	4.80 (4.1-5.0)	<b>.04</b>
<i>NPST results expressed as median (IQ).</i>				
<i>Abbreviations: NPST, Nurse Parent Support Tool; IQR, interquartile range, SSN, Servizio Sanitario Nazionale- Italian Public Healthcare System *SSN vs private rooms</i>				

Table 3  
STAI-Y results.

	Mothers (n=109)	SSN rooms (n=63)	Private rooms (n=46)	<i>P Value</i>
TRAIT-A score, mean (SD)	34.6 (8.0)	35.2 (7.5)	33.7 (8.7),	.2
STATE-A score, mean (SD)	38 (11.9)	39.1 (12.6)	36.4 (10.8)	.3
TRAIT-A score $\geq$ 40, n (%)	33 (30)	20 (312)	13 (28)	.7
STATE-A score $\geq$ 40, n (%)	46 (42)	32 (51)	14 (30)	.03
<i>Abbreviations: SSN, Servizio Sanitario Nazionale - Italian Public Healthcare System; SD, standard deviation;</i>				

A TRAIT-A score $\geq$ 40 was found to be significantly associated with a STATE-A score  $\geq$ 40 at univariate binary regression, as did a NPST  $\leq$ 4.23, being a “SSN mother” and being primiparous. Conversely, marital status, mode of delivery and maternal education did not correlate with a STATE-A score  $\geq$ 40 at univariate analysis ( $P>.05$ ). At multiple binary regression analysis, a TRAIT-A SCORE $\geq$ 40, a NPST  $\leq$ 4.23, being a “SSN mother” and primiparity remained independently associated with a STATE-A score  $\geq$ 40 (Table 4).

Table 4  
Binary logistic regression analyses predicting the likelihood of having the STATE-A  $\geq 40$ .

<i>Univariate analysis</i>					
VARIABLE	OR	95% CI for OR		P-Value	
		LL	UL		
TRAIT-A score ( $\geq 40$ vs $< 40$ )	2.95	1.27	6.88	.012	
Having a NPST ( $\leq 4.23$ vs $> 4.23$ )	5.66	2.44	13.14	$< 0.0005$	
“SSN room” vs “private room”	2.36	1.06	5.25	0.035	
Maternal age ( $\leq 35$ vs $> 35$ y)	1.93	0.88	4.23	0.098	
Marital status (single vs engaged in a stable relationship)	0.35	0.03	4.03	.40	
Maternal education ( $\leq 13$ vs $> 13$ y)	1.05	0.47	2.30	.90	
Parity (primipara vs multipara)	2.54	1.09	5.89	.029	
Mode of delivery (cesarean section vs vaginal delivery)	1.63	0.73	3.61	.229	
<i>Multivariate analysis</i>					
VARIABLE	OR	95% CI for OR		P-Value	
TRAIT-A score ( $\geq 40$ vs $< 40$ )	3.45	1.27	9.35	.015	
Having a NPST ( $\leq 4.23$ vs $> 4.23$ )	4.72	1.91	11.64	.001	
“SSN room” vs “private room”	2.73	1.06	7.07	.037	
Parity (primipara vs multipara)	3.74	1.35	10.37	.011	
<i>Abbreviations: NPST, Nurse Parent Support Tool; SSN, Servizio Sanitario Nazionale - Italian Public Healthcare System; OR, Odds Ratio; CI, Confidence Interval; LL, Lower Limit; UL, Upper Limit.</i>					

Among the variables of interest, only vaginal delivery and a priori choice to exclusively breastfeed were significantly associated with exclusive breastfeeding at discharge, both at univariate (OR=2.81, 95% CI 1.0; 7.32, P=0.034; OR=7.65, 95% CI 2.14; 27.3, P=0.002, respectively) and multivariate (OR=3.35, 95% CI 1.17; 9.52, P=0.023; OR=9.12, 95% CI 2.36; 35.1, P=0.001, respectively) binary logistic regression.

Mean anticipated duration of breastfeeding was 8.9±4.6 months. Among the reasons given to explain the decision not to breastfeed, one mother declared: "I would like to breastfeed but because of the coronavirus I don't know if I will receive enough specialized support and therefore if I will be able to manage everything". Other common answers included nipple/breast pain, emotional distress, and work-related issues.

## Discussion

Maternal psycho-emotional vulnerability during catastrophic events is already well known [14]. Healthcare providers worldwide have been advocating a "call to action" to limit the impact of the restrictions imposed by the COVID-19 pandemic [15, 16] on women's perinatal medical care, focusing on psychological aspects in particular. Preliminary studies on pregnant and breastfeeding women during the COVID-19 pandemic in Belgium highlighted the need for targeted support, reporting a worsening of the Edinburgh Postpartum Depression Scale scores [17]. Moreover, a recent study in Japan compared Mother-to-Infant Bonding Scale scores before and during the COVID-19 pandemic, reporting a worsening in mother-infant bonding at one month postpartum during the pandemic [18]. Besides anxiety symptoms caused by the collectively-shared concerns about COVID-19, described also in the general population [19], newly-mothers have faced the disruptive effect of lockdown and social distancing during pregnancy, labor and delivery. In particular, during hospital stay the recommended isolation has inevitably posed an obstacle to staff one-on-one support and interaction between mothers admitted to the same ward, not to mention the forced deprivation of fathers' supportive role during the first days of life of the newborn.

The results of the present study indicate that mothers who delivered during the COVID-19 pandemic experienced high anxiety levels (STATE-A scores  $\geq 40$ ) in almost one out of two cases. Remarkably, median STATE-A score of the mothers enrolled in the present study was higher than that of 162 mothers who delivered at the same hospital before COVID-19 pandemic (median (IQR) STATE-A score 34 (28–43) vs 36 (28.5–45.5),  $p = 0.023$ , respectively), among which the 30% showed STATE-A scores  $\geq 40$  vs 42%, of the enrolled mothers ( $p = 0.04$ ) (personal unpublished data). Moreover, when investigating the differences between "SSN rooms" and "Private rooms", the father's presence may be considered beneficial. In fact, our clinic's peculiar setting allowed us to further explore maternal experience of anxiety during hospital stay, comparing mothers who shared the hospital room with their partner and mothers who could not. Mothers who could benefit from the constant presence of the newborn's father during hospital stay had STATE-A scores  $\geq 40$  in a significantly lower percentage of cases and a better perception of staff caregiving support which, in turn, may be related to a lower level of anxiety itself.

Accordingly, although the maternal perception of staff support in our study was globally high, a higher NPST score was independently associated with a decreased risk of having a STATE-A score  $\geq 40$ . Based on the present findings, it would be advisable to optimize planning and adjustment of hospital policies in countries where the pandemic is still spreading or in a recurrence scenario, allowing fathers' presence whenever possible in order to preserve maternal mental health, and improving hospital support, particularly among primiparas who resulted to be at higher risk of exhibiting STATE-A score  $\geq 40$  than multiparas.

Postnatal anxiety or depression is a well-known risk factor for breastfeeding difficulties and early breastfeeding cessation [20], both from a psychological and endocrinological point of view, due to the negative effect on lactation hormones, such as oxytocin [21, 22]. Remarkably, in our study population breastfeeding rates at discharge were in line with those reported by previous studies performed in the same clinical setting, in the past recent years [23]. This positive aspect could reflect a breastfeeding-supporting environment, as suggested by NPST median scores. Moreover, breastfeeding rates at discharge did not differ between study groups, regardless of TRAIT-A and STATE-A scores. This could be ascribed to the absence of a follow-up, which is undoubtedly the main limit of this study.

Our results show that, besides Cesarean section, a well-known barrier to breastfeeding, mothers' *a priori* choice to exclusively breastfeed had a significant impact on breastfeeding rates at discharge. This result emphasizes the need to improve maternal education on breastfeeding importance during pregnancy, and to find new ways to achieve this goal in countries that are still experiencing lockdown and social distancing.

## Conclusions

The present study highlights the short-term effects of hospital policies and preventive measures on newly-mothers, underlining the importance of enabling fathers to assist mothers during hospital stay, and supporting mothers, especially primiparas. As we all look forward to the decline of the COVID-19 pandemic, further studies are needed to explore its long-term effects on mothers' mental health and breastfeeding rates.

## Abbreviations

CI: Confidence Interval

COVID-19: 2019 Coronavirus disease

IQR: Interquartile Range

NPST: Nurse Parent Support Tool

OR: Odds Ratio

SARS-CoV-2: Severe Acute Respiratory Syndrome coronavirus 2

SD: Standard Deviation

STAI-Y: State-Trait Anxiety Inventory–Form Y

SSN: Servizio Sanitario Nazionale - Italian Public Healthcare System

## **Declarations**

### **Ethics approval and consent to participate**

Ethical approval was obtained from the Research Ethics Committee of the Fondazione IRCCS Ca' Granda Ospedale Maggiore Policlinico, Milan, Italy and informed written consent was obtained from the mothers before enrolment.

### **Consent for publication**

Not applicable

### **Availability of data and materials**

This study involves clinical personal subject data. Informed consent and ethical approval was obtained for public sharing and presentation of the data in aggregate anonymous form only.

### **Competing interests**

The authors declare that they have no competing interests.

### **Funding**

The study did not receive any external funding.

### **Authors' contributions**

DM, AC and MLG conceptualized, designed the study and wrote the manuscript. ENB, LZ, LP collected data, carried out the initial analyses, and reviewed and revised the manuscript. LC and MF coordinated and supervised data collection and contributed to the discussion of the results. FM provided suggestions concerning the content and concept of the article.

All authors read and approved the final manuscript.

## Acknowledgements

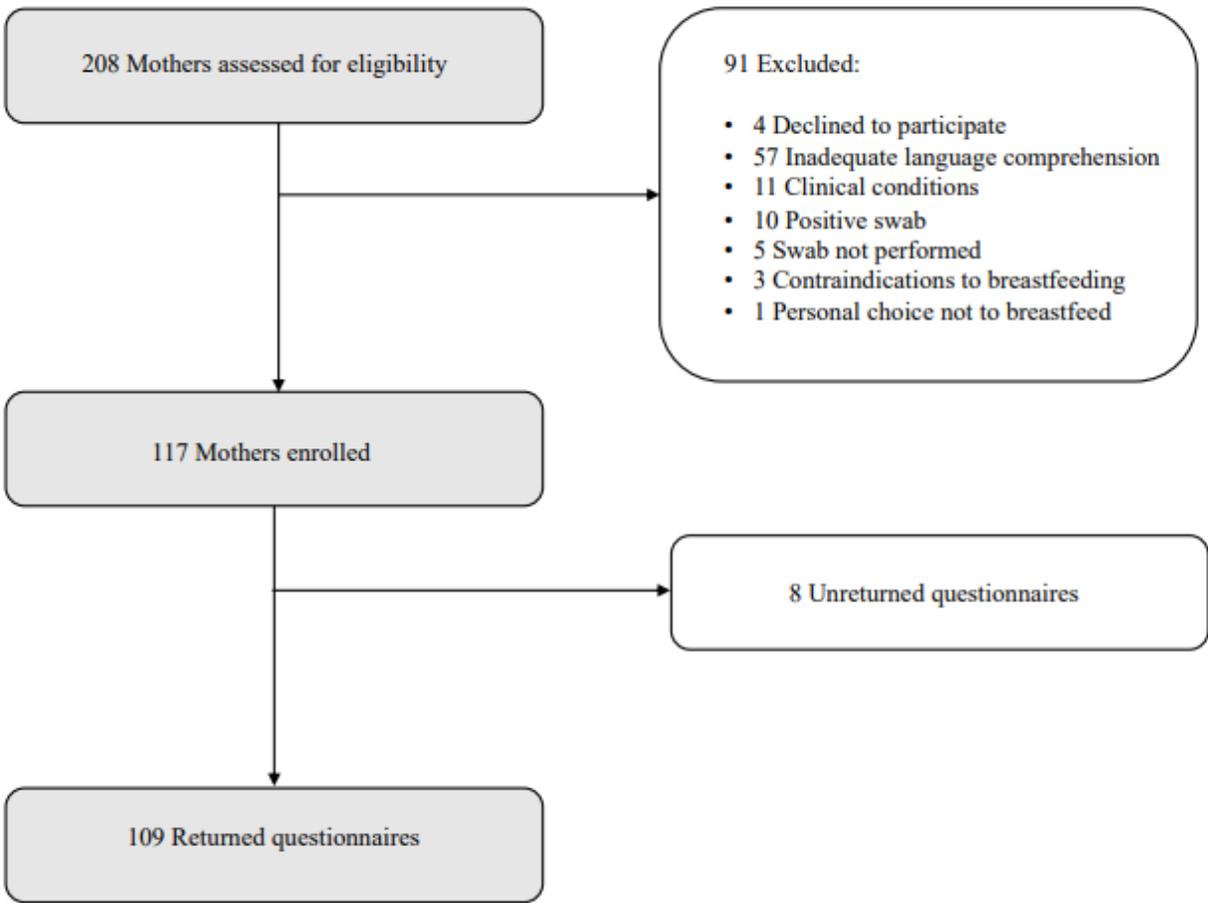
We thank the mothers for participating in the study.

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## Figures



**Figure 1**

Patient flow through the present survey study.