

# Mothers of premature newborns in the context of the COVID-19 pandemic: a qualitative approach

Mães de recém-nascidos prematuros no contexto da pandemia do COVID-19:  
uma abordagem qualitativa

Madres de recién nacidos prematuros en el contexto de la pandemia del COVID-19:  
un enfoque cualitativo

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## ABSTRACT

**Objective:** To know the perceptions of mothers of premature newborns hospitalized in the Neonatal Unit in the face of the COVID-19 pandemic. **Method:** Qualitative research carried out in June and July 2020, involving 12 mothers of premature newborns hospitalized in the neonatal units of a maternity hospital in the state of Ceará during the Coronavirus pandemic. Mothers were contacted via *WhatsApp* application. For the textual analysis, the descending hierarchical classification performed by the *IRAMUTEQ* software was used. **Results:** The mothers' perception was centered on the difficulties faced in this pandemic period. The word "no" was strongly presented in the corpus of the text, evidencing the impact of the impediment of the visit, of the mothers' permanence in the units and the fact of not being able to breastfeed. **Conclusion:** The provision of humanized care in neonatal units should not be limited to the newborn, and emotional support for mothers by the health team is essential. **DESCRIPTORS:** Neonatal intensive care unit; Premature newborn; Coronavirus infections.

## RESUMO

**Objetivo:** Conhecer as percepções das mães de recém-nascidos prematuros internados na Unidade Neonatal diante da pandemia do COVID-19. **Método:** Pesquisa qualitativa realizada entre junho e julho de 2020, envolvendo 12 mães de recém-nascidos prematuros internados nas unidades neonatais de uma maternidade no estado do Ceará durante a pandemia do Coronavírus. As mães foram contactadas via aplicativo *WhatsApp*. Para a análise textual foi utilizada a classificação hierárquica descendente realizada pelo software *IRAMUTEQ*. **Resultados:** A percepção das mães estava centrada nas dificuldades enfrentadas neste período de pandemia. A palavra "não" foi fortemente apresentada no *corpus* do texto, evidenciando o impacto do impedimento da visita, da permanência das mães nas unidades e o fato de não poder amamentar. **Conclusão:** A prestação de uma assistência humanizada nas unidades neonatais não deve se limitar ao recém-nascido, sendo fundamental o apoio emocional às mães por parte da equipe de saúde. **DESCRIPTORES:** Unidade de terapia intensiva neonatal; Recém-nascido prematuro; Infecções por coronavírus.

## RESUMEN

**Objetivo:** Conocer las percepciones de las madres de recién nacidos prematuros internados en unidades neonatales ante la pandemia del COVID-19. **Método:** Investigación cualitativa realizada en junio y julio de 2020 con la participación de 12 madres de recién nacidos prematuros internados en las unidades neonatales de una maternidad del estado de Ceará durante la pandemia del Coronavirus. Se contactó a las madres por medio de la aplicación *WhatsApp*. Para el análisis textual se utilizó la Clasificación Jerárquica Descendente realizada en el programa de software *IRAMUTEQ*. **Resultados:** La percepción de las madres se enfocó en las dificultades que debieron enfrentar en este período de la pandemia. La palabra "no" se hizo presente en gran medida en el *corpus* del texto, evidenciando así el efecto de la imposibilidad de las visitas y de la permanencia de las madres en las unidades, además del hecho de no poder amamentar. **Conclusión:** La prestación de atención humanizada en las unidades neonatales no debe limitarse al recién nacido, siendo fundamental el apoyo emocional a las madres por parte del equipo de salud. **DESCRIPTORES:** Unidad Neonatal de Cuidados Intensivos; Recién nacido prematuro; Infecciones por coronavirus.

## INTRODUCTION

The world is experiencing a Public Health Emergency caused by the *Severe Acute Respiratory Syndrome Coronavirus 2* (SARS-CoV-2) virus, which causes the respiratory disease *Coronavirus 2019* (COVID-19). The pandemic is already responsible for more than 3.5 million deaths and has 170 million infected worldwide. In Brazil, there are more than 23 million confirmed cases and more than 621 thousand deaths from COVID-19<sup>(1,2)</sup>.

There is not enough evidence about vertical transmission of the COVID-19 virus. A study carried out in Wuhan, China, showed the absence of the virus in samples of amniotic fluid, swab from the throat of neonates, umbilical cord and human breast milk<sup>(3)</sup>. However, research involving Chinese children has shown that all children are susceptible to the virus, with babies being the most vulnerable class to infection<sup>(4)</sup>.

In the Brazilian context, due to the rapid spread of the virus, several measures were enacted to deal with COVID-19. The Ministry of Health recommends that neonatal units should not be closed or reduced. However, care must be taken to prevent agglomerations, guarantee access to asymptomatic people and who do not have home contacts with people carrying the virus<sup>(5)</sup>.

The process of separation between mother and newborn (NB) in the face of prematurity is already difficult, so following such more restrictive measures to contain the human infection caused by COVID-19 can make the moment even more delicate for the binomial. International evidence, involving mothers of babies hospitalized in a neonatal unit, points to the presence of fear and loneliness in the face of detachment and unpreparedness and, on the contrary, the feeling of pleasure and competence when they receive support from the health team, making them more confident and empowered<sup>(6)</sup>.

The pandemic caused by the coronavirus has had serious consequences on mental health. Research involving 1,041 pregnant women showed that 45.7% had mental disorders during the period of social distancing, which were aggravated by negative feelings in the face of exposure to COVID-19<sup>(7)</sup>.

Based on the knowledge of the perception of mothers of premature babies in the face of the COVID-19 pandemic, it is relevant that health professionals have subsidies for the development of effective and viable strategies with regard to the promotion of maternal and child health during this specific time, providing qualified attention,

which involves all the necessary emotional support. However, there is a gap in knowledge regarding actions that can be carried out with these mothers, as there is still not much scientific evidence on the subject.

In the context of maternal and child health, it is clear that these negative feelings are even more present<sup>(8)</sup>. Therefore, it is reflected that these mothers may be negatively affected in the current context of the COVID-19 pandemic. Thus, the objective of the research was to know the perceptions of mothers of premature newborns hospitalized in the Neonatal Unit in the face of the Coronavirus pandemic.

## METHOD

This is an exploratory research with a qualitative approach between June and July 2020 in the Neonatal Unit of a reference maternity hospital in newborn health care in the state of Ceará. This Neonatal Unit consists of four units, two Conventional Care Units (UCINCo), with 15 beds each, and two Neonatal Intensive Care Units (NICU), with 12 and 9 beds, totaling 51 beds in the Neonatal Unit.

The institution is one of the six Support Centers for Good Practices in obstetric and neonatal care of Rede Cegonha in Brazil and, for this reason, was chosen to integrate QualiNEO, a strategy that aims to reduce neonatal mortality and improve care for newborns in maternity hospitals in the North and Northeast regions.

Data collection was performed by nurses from the units of the health institution and by professors at the University of International Integration of Afro-Brazilian Lusophony.

The research participants were mothers of premature babies (birth that occurs after 20 weeks and before completing 37 weeks of gestation) hospitalized in the Neonatal Unit of the aforementioned institution. It was considered an inclusion criterion to have the *WhatsApp Messenger*® application used in data collection. And as an exclusion criterion: not answering phone calls after three attempts on different days and times.

Sampling was by convenience, which is not based on numerical criteria to guarantee its representativeness. Data collection was completed when there was data saturation during the interviews. Because the researchers were nurses at the unit, it facilitated the bond between the mothers, explaining the purpose and benefits of the research.

Initially, the registration data of the mothers were identified in the registration form of the sector of the health institution. The researchers made phone calls to the puerperal women from a new phone number intended only for the research, and they were invited to participate in the study. After acceptance, the mothers were contacted via *WhatsApp Messenger*<sup>®</sup>, a free messaging application for Android and other platforms. This means was chosen, due to better accessibility, since social media provide a bridge between researchers and health users and are effective for new evidence in clinical practice.

Thus, a link was sent via the application so that they had access to the Free and Informed Consent Term (ICF), which was prepared in the Google Forms<sup>®</sup> application. Subsequently, a new telephone call was made using a script adapted from Chaves et al.<sup>(9)</sup>, for application of the form developed by the researchers containing two parts: 1- Sociodemographic and obstetric data; 2- Guiding questions about the perception of mothers of premature newborns hospitalized in neonatal units in the face of the Coronavirus pandemic. It is noteworthy that all calls were recorded using the *Automatic Call Recorder* application, and the interviews were transcribed into a database.

For the analysis of sociodemographic and reproductive data, the IBM - SPSS 22.0 statistical package was adopted for descriptive statistics, using percentage and absolute and median frequencies.

The interviews lasted about 15 minutes, which were transcribed by two researchers. For the analysis, the data were submitted to content analysis, which used systematic procedures to understand the speeches. Among the modalities of content analysis, thematic analysis was chosen, as it is classified by means of a word or phrase, which allows "discovering the nuclei of meaning" in communication<sup>(10)</sup>.

Subsequently, the data were organized and tabulated in Windows Notepad software, where they were encoded with asterisks and saved in UTF8 format, which enabled processing in the chosen software. It is noteworthy that it was not possible to return the transcripts to the participants due to social isolation.

To facilitate the textual analysis, we opted for processing through the *Interface de R pour les Analyses Multidimensionnelles de Textes et de Questionnaires* (IRAMUTEQ), version 07 alpha 2, adopting the Descending Hierarchical Classification

(DHC). This favored the classification of textual segments based on the vocabulary that was used. With the DHC, it was possible to divide the textual segments into smaller blocks, so that, based on the total textual corpus, associations could be made between these segments, thus allowing the grouping by correlation of words that had statistical significance. Thus, each interview corresponds to an Initial Context Unit (ICU), in which each Elementary Context Unit (ECU), which are the textual segments of each class, were extracted from the ICU based on the similarities between them and the discrepancies between the ECUs of the other classes.

The research complied with Resolution 466/2021, which provides for research involving human beings, and was approved by the Research Ethics Committee of the University of International Integration of Afro-Brazilian Lusophony under opinion number 4,205,958. The risks involved were related to social embarrassment, embarrassment for involving issues related to reproductive health and related to feelings and time available to answer the questionnaire. However, the researchers sought to mitigate these risks with behaviors of freedom not to answer questions that made the participant uncomfortable, ensured confidentiality and privacy and ensured that information was not used to the detriment of people.

The women were instructed on how beneficial the research was, knowing about the mental health of mothers of premature babies during this pandemic period, aiming to contribute to the development of effective interventions for the promotion of maternal and child health. At the end of the research, the results were presented to the health institution.

## RESULTS

Sixteen mothers were approached, but two did not have the WhatsApp Messenger<sup>®</sup> application and two did not answer phone calls after three attempts to contact them on different days and times. Therefore, 12 interviews were carried out with mothers of premature newborns hospitalized in neonatal units during the COVID-19 pandemic. The profile of these mothers was of women between 15 and 33 years of age (M=25 years), most were married or in a consensual union with the father of the newborn (n=7; 58.3%) and had complete elementary education (n=10; 83.3%). They were primiparous (n=6; 50%) or multiparous (n=6;

50%) in equal proportion, and most of them planned the pregnancy (n=8; 66.7%).

The newborns were born between 24 and 34 weeks of gestation (M= 28.2 weeks of gestational age), weighing between 590g and 2580g (M= 1300g). At the time of the interviews, the newborns were between seven and 206 days old, that is, a median stay of 60.2 days, which corresponds to a prolonged period of hospitalization.

The process of analysis, discussion and interpretation of data was guided by the technique of Content Analysis.

The 12 interviews made up the general corpus in the analysis, with 936 occurrences of words, in which 230 distinct forms and 29 textual segments (TS) were identified. Of the total TS processed, 22 of them were classified, which corresponds to a retention of 75.86% of use. Of the total number of words, 337 of them are distinct and, of these, 186 appear only once (hapax).

Through processing, a total of five classes were obtained: Class 1, with 4 TS (18.2%); Class 2, with 4 TS (18.2%); Class 3, with 4 TS (18.2%); Class 4, with 5 TS (22.7%); and Class 5 with 5 TS (22.7%). To facilitate understanding and discussion, the classes were respectively named: Difficulties faced; Measures adopted; Emerging

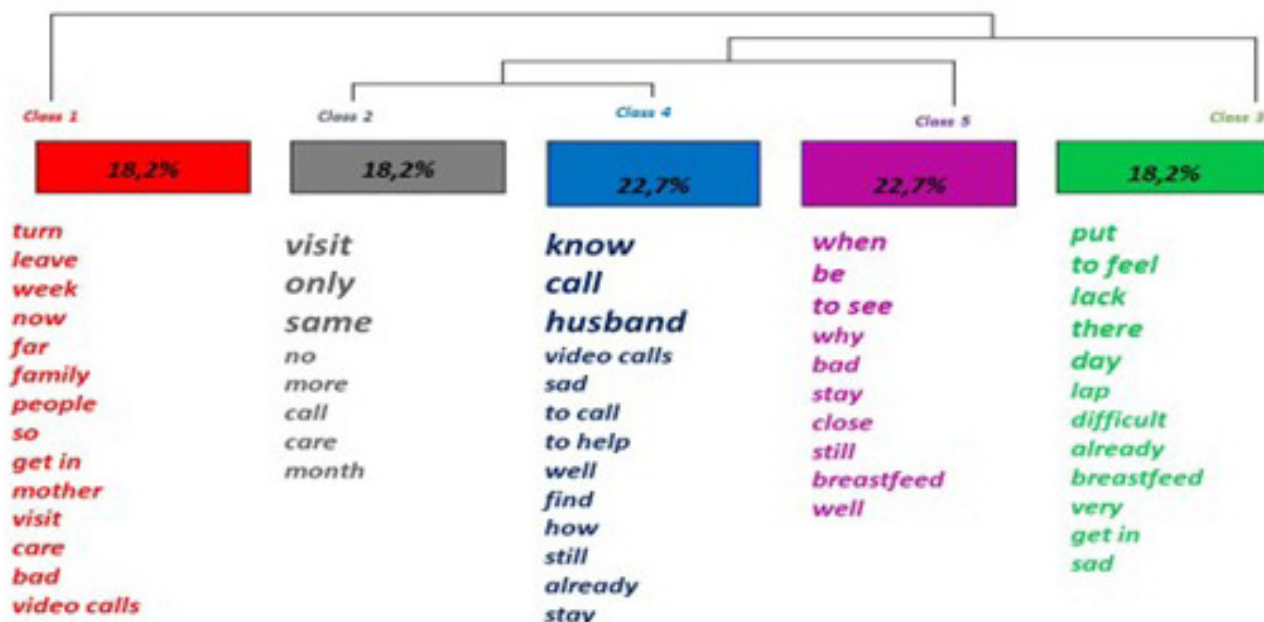
feelings; Situational coping and interruption of the mother-child binomial.

Figure 1 presents the dendrogram of the Descending Hierarchical Classification, demonstrating the interrelationship between the classes and the words that stood out in each of them.

Figure 2 describes the operationalization and exemplification of the classes, with the presentation of a dictionary of words created by IRAMUTEQ using the chi-square test, revealing the words that are strongly associated with each of the five classes, considering a  $p < 0.05$  for inclusion of the word.

In order to illustrate the predominance of words in the corpus of the text as a whole, Figure 3 presents the word cloud, demonstrating the strong presence of the word "no", which appears 26 times in the textual corpus, as well as "being", with frequency of 19 times, "stay" and "visit", with 15 repetitions each. These data represent the impact of preventing mothers from visiting and staying in neonatal units on the feelings experienced by mothers of premature newborns in the pandemic.

In order to identify the occurrences between the words and facilitate the visualization through the graphs, the similarity of the textual



**Figure 1** - Dendrogram of the Descending Hierarchical Classification. Fortaleza, Ceará, Brazil, 2021  
Source: Prepared by the authors, 2021.



Class 1				Class 2				Class 4				Class 5				Class 3			
Word	X2	%	p	Word	X2	%	p	Word	X2	%	p	Word	X2	%	p	Word	X2	%	p
turn	22,0	100	<0,0001	visit	8,56	50,0	0,00344	Know	7,61	75	0,00581	when	16,62	100	<0,0001	Put	22	100	<0,0001
leave	15,63	100	<0,0001	only	7,61	60,0	0,00581	Call	6,92	57,14	0,00850	be	6,47	6,47	0,01096	to feel	16,62	80	<0,0001
week	15,63	100	<0,0001	same	5,61	50,0	0,01781	Husband	5,12	60	0,02367	to see	5,32	5,32	0,02102	lack	16,62	80	<0,0001
now	25,63	100	<0,0001									why	5,12	5,12	0,02367	there	15,63	100	<0,0001
far	10,61	75	0,00112													day	10,61	75	0,00112
Family	7,61	60	0,00581													lap	10,61	75	0,00112
People	5,49	66,67	0,01913													difficult	5,49	66,67	0,01913
so	5,49	66,67	0,01913																
get in	5,49	66,67	0,01913																

**Figure 2** - Operationalization and exemplification of the classes of the Descending Hierarchical Classification. Fortaleza, Ceará, Brazil, 2021

Source: Prepared by the authors, 2021.



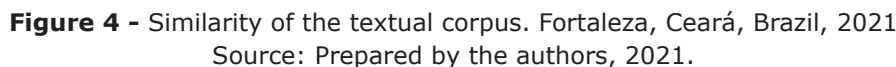
**Figure 3** - Word Cloud. Fortaleza, Ceará, Brazil, 2021

Source: Prepared by the authors, 2021.

corpus was analyzed as a whole and creating a relationship between the words, as shown in Figure 4.

It is observed that, in this research, the root of knowledge is the word "no", emphasizing that the feelings of mothers during this pandemic emerge from the fact of "not being able to stay", "not

visiting", "not feeling well", "not caring" and "not breastfeeding", for example. Despite the health authorities recommending the maintenance of breastfeeding in cases of mothers with COVID-19, this practice was not possible in these neonatal units in the current context due to the increasing spread of the virus in the State of Ceará, and



It was possible to understand that the perception of mothers of premature newborns hospitalized in neonatal units during the Coronavirus pandemic is centered on the difficulties faced in this period, which was permeated with negative feelings in the face of the child's distance. Qualitative research that involved a focus group of eleven mothers of extremely premature babies pointed out that they experience the feeling of emptiness and emotional crisis, given the complexity of the environment and the difficulty of forming a bond with hospitalization. The presence of a health team that promotes bonding, that encourages the participation of mothers in care and that facilitates

communication can effectively contribute to improving this psychological aspect of mothers<sup>(14)</sup>.

Despite respecting the conditions established by the health institution, the mothers frequently reported the words "turn", "leave" and "week" (class 1), aiming at the possibility of allowing the visit to be allowed at least once a week. In times of reduced visitation due to the COVID-19 pandemic, it is the responsibility of professionals to maintain the psychosocial support of the Neonatal Unit for family members, seeking alternative methods and showing that the use of technologies can favor the emotional state of parents who are far from their children<sup>(15)</sup>.

It was observed, from the words of the dendrogram, how important was the use of technologies with the use of the telephone, making calls and video calls, which helped to maintain the bond between mother and child during this period. Despite the gaps presented by these technologies regarding fragility in interpersonal relationships, digital health interventions are playing a significant role in health care in the face of the COVID-19 pandemic. In Brazil, a group of professionals from São Paulo implemented the proposal of the virtual visit, which aims to maintain the bond and psychological support to the patient and the family during their hospitalization, with the presence of a psychology professional or social service for follow-up being important<sup>(16)</sup>.

Despite experiencing a troubled period of hospitalization of their children, it was possible to notice the hope of mothers in the return of face-to-face visits and in meeting their child, as seen in the prevalence of the words "when", "put", "feel". The hospitalization of premature newborns in the NICU brings several feelings to mothers and, in the context of the COVID-19 pandemic, parents' restrictions in neonatal units are added to prevent the spread of the virus, which limited the interaction with the premature baby and with health professionals, leading to a lack of information about the child's condition and an increase in these parents' anxiety<sup>(12)</sup>.

The presence of the word "no" as a root of knowledge made it evident how impacted the mothers were in not being able to visit their children, not putting them on their laps and not experiencing breastfeeding. The permanence of parents with their child in neonatal units was encouraged by the Ministry of Health (MOH), and the guarantee of breast milk was recommended. However, it is reiterated that the interviews were

carried out at a critical moment of the pandemic experienced in the state of Ceará, in which social isolation was imposed by the government. Considering the high average stay of newborns in the Neonatal Unit mentioned above, the vast majority no longer had their mothers hospitalized and, with the rules of social isolation, they had no way to travel to the maternity ward, including due to lack of public transport. In addition, the health institution evaluated and instituted the suspension of visits to neonatal units aiming at the safety of professionals and hospitalized patients, including the newborns themselves, encouraging milk extraction and sending to the milk bank and using technological resources (virtual visit) to minimize emotional damage and favor the mental health of family members and newborns<sup>(5,17)</sup>.

Family-centered care interventions, such as skin-to-skin contact, have been increasingly encouraged. Research developed in Australia, which investigated the effect that skin-to-skin contact between parents and newborns has on the heart rate (HR) and blood pressure (BP) of the parents, showed a reduction in the HR and BP of the parents ( $p < 0.05$ ), a decrease in parental depression and anxiety, as well as an increase in the feeling of a bond between parents and the NB. Therefore, it is suggested that skin-to-skin contact be implemented in neonatal units as a way of favoring the gap in the fragility of the bond between this binomial<sup>(18)</sup>.

Although skin-to-skin contact is a strategy already adopted at the research institution, this practice was repressed due to restrictions caused by the COVID-19 pandemic. According to the guidelines for the neonatal unit of the MOH, skin-to-skin contact was still possible exclusively by the asymptomatic mother and who is not in home contact with a person with flu syndrome or respiratory infection proven by SARS-CoV-2<sup>(5)</sup>.

In this scenario of uncertainties and weaknesses, mothers reported the importance of support networks, such as their family members, especially the mother and husband. The absence of a support network during the pandemic was an aspect reported in another study, which is a matter of concern, given that the physical presence of the family occupies the first position in the concept of women, who report the care provided by them to the NB as positive and the support for herself, generating a feeling of support and improvement in self-esteem<sup>(19,20)</sup>.

The limitation of the research consisted in carrying out the interview in a non-face-to-face manner, which possibly made it difficult to collect data in relation to the reports, the link between researcher-participant and the researcher's observation. However, this modality was chosen due to the recommendation of distancing during the pandemic. It is believed that these findings strengthen research in the field of neonatology, in order to humanize the care practice of health professionals, especially nurses, in caring for mothers of premature newborns who are experiencing the COVID-19 pandemic.

## CONCLUSION

It is concluded that the perception of mothers of premature newborns hospitalized in neonatal units during the COVID-19 pandemic is centered on the difficulties faced in this period, permeated by negative feelings resulting from the distance from the child. The word "no" was strongly presented in the corpus of the text, evidencing the impact of the impediment of the visit, of the mothers' permanence in the units and the fact of not being able to breastfeed.

The provision of humanized care in neonatal units should not be limited to the NB, and emotional

support for mothers by the health team in this critical period is essential. The development of research that evidences the effectiveness of technologies that allow the approximation of NBs hospitalized in neonatal units with their parents in the context of the COVID-19 pandemic is suggested, being an opportunity to promote the bond between mother and child, favoring mother and child health.

The research aims to support other professionals in this area in the care of mothers of premature newborns in the COVID-19 pandemic, by knowing the demands and difficulties, aiming to improve the care provided to this clientele in this context of fragility.

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## CONFLICT OF INTEREST

The authors declare no conflict of interest.

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