Original Article

Clinical and demographic profile of newborns admitted to a neonatal unit

Perfil clínico e demográfico dos recém-nascidos internados em uma unidade neonatal

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ABSTRACT | OBJECTIVE: To characterize the clinical demographic profile of newborns from a Neonatal Unit in a public maternity hospital. **METHODS:** A descriptive, retrospective, cross-sectional study. The participants were mothers and newborns from a public maternity hospital in Santa Catarina, in 2019. Data were obtained from electronic medical records, organized in a spreadsheet, and analyzed using descriptive statistics. **RESULTS:** A total of 681 newborn records were analyzed, of which 182 were transferred to another institution and 31 died, thus being excluded, totaling 468 newborns and their mothers. Prevalence of mothers aged 20 to 34 years, 301 (64.3%), complete high school degree, 199 (42.5%), and 6 to 10 prenatal consultations, 241 (51.5%). Newborns were mostly male, 244 (52.1%), full-term, 258 (55.1%), and of appropriate weight, 243 (59.1%). The main reasons for hospitalization were prematurity, 200 (42.7%), respiratory distress, 135 (28.8%), and neonatal infection, 185 (39.5%). **CONCLUSIONS:** This study identified the profile of newborns in a neonatal unit and their mothers. Strengthening nurses' actions for maternal and child care during family planning, prenatal, delivery, and post-birth can contribute to maternal and infant morbidity and mortality reduction, which is a major public health problem.

KEYWORDS: Newborn. Maternity. Neonatal Intensive Care Unit.

RESUMO | OBJETIVO: Caracterizar o perfil clínico demográfico dos recém-nascidos de uma Unidade Neonatal em uma maternidade pública. **MÉTODO:** Estudo descritivo, retrospectivo, transversal. Os participantes foram os recém-nascidos e suas respectivas mães, de uma maternidade pública em Santa Catarina, em 2019. Os dados foram obtidos nos prontuários eletrônicos, organizados em planilha e analisados por meio da estatística descritiva. **RESULTADOS:** Foram analisados 681 prontuários de recém-nascidos. Destes, 182 foram transferidos para outra instituição, e 31 foram a óbito, sendo excluídos, totalizando 468 recém-nascidos e suas respectivas mães. Prevaleceram mães com 20 a 34 anos, 301 (64,3%), ensino médio completo, 199 (42,5%), 6 a 10 consultas de pré-natal, 241(51,5%). Os recém-nascidos eram na maioria do sexo masculino, 244 (52,1%), a termo 258 (55,1%), e com o peso adequado, 243 (59,1%). Os principais motivos de internação foram: prematuridade, 200 (42,7%), desconforto respiratório, 135 (28,8%), e infecção neonatal, 185 (39,5%). **CONCLUSÕES:** Este estudo identificou o perfil dos recém-nascidos de uma unidade neonatal e de suas mães. Conhecer este perfil pode fortalecer ações do enfermeiro para o cuidado materno-infantil durante o planejamento familiar, pré-natal, parto e pós-nascimento, contribuindo para a redução da morbimortalidade materna e infantil, que constitui um grande problema de saúde pública.

PALAVRAS-CHAVE: Recém-Nascido. Maternidade. Unidade de Terapia Intensiva Neonatal.

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Introduction

The neonatal period is considered an adaptation phase in the child's life due to the high risk of morbidity and mortality because of its sensitivity to the biological, environmental, socioeconomic, and cultural risks of the extrauterine environment.[1]

Attention to newborn (NB) health care is extremely important to reduce infant mortality. Although the infant mortality rate in Brazil has declined significantly in recent decades[2,3], being 13.3 deaths per 1,000 live births (l/b) in 2019, several challenges still need to be overcome, such as the difficulty in accessing health services, carrying out family planning, adherence and adequate prenatal care, identification of high-risk pregnancies, intensification of good practices during childbirth and postpartum.[4,5]

The social, economic, and cultural heterogeneity among Brazilian states also contributes to the disparity related to infant mortality, the North region with 16.6/1,000 (l/b), and the South region with 10.2/1,000 (l/b) in 2019.[3] Countries such as Canada and the United States have an infant mortality rate of 4.4/1,000 (l/b) and 5.5/1,000 (l/b) respectively.[6]

There is a complex relationship between sociodemographic factors, pregnancy conditions, delivery, and postpartum that influence the morbidity, mortality, and hospitalization of newborns, therefore, it is essential to know these risk factors since many are preventable and constitute a serious public health problem.[7,8]

It is essential to provide women with access to health services early in pregnancy. Since 2000, several strategies, plans, and policies to promote and minimize morbidity and mortality have been developed, such as the Programa de Humanização no Pré-natal e Nascimento - PHPN (Prenatal and Birth Humanization Program), the initiative Hospital Amigo da Criança - IHAC (Child-Friendly Hospital), and the Pacto Nacional pela Redução da Mortalidade Materna e Neonatal (National Pact for the Reduction of Maternal and Neonatal Mortality).[2]

Nurses in health services contribute to the implantation and implementation of maternal and child health policies through prenatal care with individualized attention, active listening and therapeutic communication, delivery, and postpartum care by trained and up-to-date professionals using evidence-based best practices.[2,4,5]

However, sometimes, birth can be accompanied by complications that can lead the NB to require intensive care.[9] The Neonatal Intensive Care Unit (NICU) is a fundamental sector for the survival of high-risk newborns. It involves high-complexity assistance with teams trained in NB care, reconciling technological advances with approaches to humanized care practices.[9,10] Besides the NICU, the Conventional Intermediate Care Unit (IMCU) is of paramount importance for newborns who need continuous care of medium complexity, being also a support for the intensive unit.[11]

The present study was based on an internal demand of the service itself, in order to know the clinical and demographic characteristics of the hospitalized newborns, since the last survey on the subject at the site was carried out in 2013.[12] Thus, the study is justified because it is of paramount importance to identify vulnerabilities and perinatal factors related to NB hospitalizations. In addition, it is believed that studies of this nature generate information to support managers in expanding strategies aimed at the care necessary for hospitalization, such as the development of health promotion and disease prevention actions in order to reduce neonatal morbidity and mortality.

In this context, the question was: what is the profile of the NBs hospitalized in the Neonatal Intensive Care Unit and the Conventional Intermediate Care Unit of a public maternity hospital located in the Northeast of Santa Catarina in 2019? Thus, this study aimed to characterize the clinical and demographic profile of newborns in a public maternity hospital.

Method

This is a descriptive, cross-sectional, and retrospective study carried out in 2020, at the Darcy Vargas Maternity Hospital, located in the city of Joinville-SC. The study participants were 468 newborns who were hospitalized in the NICU and IMCU and their respective mothers in the year 2019. It is worth mentioning that the NBs from the Kangaroo Intermediate Care Unit (Kangaroo IMCU) were previously hospitalized in the NICU; therefore, they were participants in the study.

As inclusion criteria, it was considered: to have a complete medical record with the information or variables studied in the research. Newborns who were transferred to other hospitals or those who died during hospitalization were excluded.

The local maternity hospital where the study was carried out is a state reference in specialized care for high-risk pregnancies and NICU.[13] It was the first maternity hospital in the state to create a Human Milk Banking (HMB), which is currently the reference center for the state of Santa Catarina, as well as Humanized Newborn Care - Kangaroo Method.[13]

The Maternity Neonatal Unit has 27 beds, 10 for the NICU, 14 for the IMCU, and 3 for the Kangaroo IMCU, with an average monthly occupancy rate of 95%. It has 156 employees, divided into 20 nurses, 84 nursing assistants, and technicians, and 52 from the multidisciplinary team, made up of doctors, physiotherapists, psychologists, occupational therapists, social workers, and speech therapists.[13]

Data were collected by the researchers from the electronic medical record of RNs and mothers in the Service Management System - HOSPITALAR (SGS HOSPITALAR) in the year 2019. The data collection period was from October 2020 to February 2021.

The newborn's variables were: gender, gestational age (GA) in weeks, birth weight in grams, and 1st and 5th minute Apgar scores. Apgar is an assessment to determine the vitality conditions of NBs. This assessment is based on the sum of five items: heart rate, respiratory effort, muscle tone, reflex irritability, and color. Apgar scores below seven in the first and fifth minutes may represent complications or alterations contributing to neonatal morbidity and mortality.[14]

Other newborn variables in this study were: length of stay in days, the reason for admission, medical diagnoses during hospitalization, use of surfactant, invasive mechanical ventilation, non-invasive ventilation, use of vasoactive drugs, parenteral nutrition, peripherally inserted central catheter, umbilical venous catheter, umbilical arterial catheter, invasive blood pressure, antibiotic use, phototherapy, type of breastfeeding at hospital discharge, care demands at discharge.

Regarding the mother, the study variables were: maternal age in years, place of residence, education, type of pregnancy, birth rate, type of delivery, previous diseases and pathological conditions inherent to the pregnancy, number of prenatal consultations, use of medications during pregnancy and toxic habits during pregnancy.

The collected data were organized and processed in a spreadsheet in the Microsoft Office software - Excel® 2016, and a descriptive analysis of the data was performed.

The study was guided by Resolution Number 466/12 of the Ministry of Health[15], and Research Ethics Committee (CEP) was asked to waive the Free and Informed Consent Term, as the data were collected from the participants' medical records. All ethical precepts of the Regulatory Guidelines and Norms for Research involving Human Beings[15] were complied with and approved by the CEP of Associação Educacional Luterana Bom Jesus IELUSC under opinion CAAE: 38442720.8.3001.5363.

Results

A total of 357 neonates were admitted to the NICU and 324 to the IMCU of the maternity hospital under study in 2019, of which 182 (27.1%) were transferred and 31 (4.6%) died, resulting in 468 medical records analyzed. In the NICU, 196 (41.9%) participated, and in the IMCU 272 (58.1%) newborns and their respective mothers.

Regarding the characteristics of the mothers, 301 (64.3%) were aged between 20 and 34 years, and 199 (42.5%) had completed high school. There was a prevalence of mothers from the city of Joinville-SC, with 331 (70.7%) (Table 1).

The type of pregnancy with a single fetus corresponded to 426 (91%). As for parity, 323 (69%) had one to two previous deliveries. Regarding the mode of birth, 255 (54.5%) underwent cesarean section, and 213 (45.5%) had a vaginal delivery. The mothers who had six to ten prenatal consultations were 241 (51.5%) and 34 (7.3%) did not perform or did not have information about this follow-up. Regarding the pregnancy period, 405 (86.5%) of the mothers denied the use of toxic substances, and 63 (13.5%) reported the use of illicit drugs, alcoholism, and smoking. As for the use of medication during pregnancy, 267 (57%) denied it. Of those who used medication, 121 (62%) used antibiotics, 58 (29.7%) antidiabetic, 35 (17.9%) antihypertensive, and 30 (15.4%) used anti-inflammatory (Table 1).

Health problems were present in 379 (81%) mothers during pregnancy, the most common being pathological conditions associated with pregnancy, such as genitourinary disorders, 144 (38%), gestational diabetes mellitus, 70 (18.5%), and hypertensive syndromes during pregnancy, 48 (10.2%). Prevalent previous conditions were chronic arterial hypertension in 43 (11.4%), hypothyroidism in 27 (7.1%), and obesity in 21 (5.5%). Mothers who had no problems during pregnancy corresponded to 89 (19%).

Table 1. Sociodemographic and obstetric data of mothers of newborns admitted to the NICU and IMCU of a maternity hospital in the Northeast of Santa Catarina between January and December 2019

Variables	n	%
Maternal Age		
10 – 19 years	76	16,2
20 – 34 years	301	64,3
>35 years	91	19,4
Education		
Elementary School- Incomplete	78	16,7
Elementary School- Complete	148	31,6
High School- Complete	199	42,5
University Education-Complete	40	8,5
Not informed	3	0,6
Participants by city		
Joinville	331	70,7
Other cities in the Northeast of Santa Catarina	136	29,1
Other States	1	0,2
Types of Pregnancy		
Single	426	91
Others	42	9
Parity		
1 to 2	323	69
3 to 5	118	25,2
≥ 6	27	5,8
Type of delivery		
Cesarean	255	54,5
Vaginal	213	45,5
Number of prenatal consultations		
1 to 5	87	18,6
6 to 10	241	51,5
>10	106	22,6
No consultation or not informed	34	7,3
Toxic habits during pregnancy		
Yes	63	13,5
No	405	86,5
Medications used during pregnancy		
Yes	195	41,7
No	267	57
Cannot remember	6	1,3
Health problems		
Yes	379	81
No	89	19
Total	**468**	**100**

Source: Service Management System - HOSPITALAR, 2020.

Regarding the characterization of the 468 hospitalized NBs, 244 (52.1%) were male, 258 (55.1%) were classified as full-term, and 210 (44.9%) were classified as preterm. Regarding birth weight, 243 (59.1%) had adequate weight between 2500g and 3499g. Of the total number of NBs, 126 (26.9%) had an Apgar score <7 at the 1st minute of life and 38 (8.1%) at the 5th minute of life (Table 2).

Regarding the length of stay, 192 (41%) were hospitalized for a period less than or equal to 7 days, and 10 (2.1%) remained hospitalized for more than 60 days. NBs who were discharged with exclusive breastfeeding corresponded to 375 (80.1%) (Table 2).

Table 2. Characterization of newborns hospitalized in the NICU and IMCU of a public maternity hospital in the Northeast of Santa Catarina between January and December 2019

Variables	n	%
Sex		
Male	244	52,1
Female	224	47,9
Gestational age		
<37s	210	44,9
37s – 41s+6d	258	55,1
Birth weight		
<2500g	188	40,2
2500g - <3499g	243	51,9
>4000g	37	7,9
Apgar		
<7 (1st min)	126	26,9
≥7 (1st min)	333	71,2
No data (1st min)	9	1,9
<7 (5th min)	38	8,1
≥7 (5thmin)	421	90
No data (5th min)	9	1,9
Hospitalization period (days)		
≤7	192	41
8 – 14	144	30,8
15 – 30	77	16,4
31 – 60	45	9,6
>60	10	2,1
Discharge with exclusive breastfeeding		
No	93	19,9
Yes	375	80,1
Total	**468**	**100**

Source: Service Management System - HOSPITALAR, 2020.

During hospitalization, the prevalent therapeutic resources used by NBs were: mechanical ventilation, 109 (23.3%), non-invasive ventilation as ventilatory support, 272 (58.1%), umbilical venous catheter, 181 (38.7%), antibiotic therapy, 206 (44%), and phototherapy in 169 (36.1%) (Table 3).

Table 3. Therapeutic resources used by newborns hospitalized in a NICU and IMCU of a public maternity hospital in the Northeast of Santa Catarina between January and December 2019

Variables	n	%
Use of Surfactant		
No	392	83,8
Yes	76	16,2
Use of Mechanical Ventilation		
No	359	76,7
Yes	109	23,3
Use of Non-Invasive Ventilation		
No	196	41,9
Yes	272	58,1
Use of Vasoactive Drug Use		
No	411	87,8
Yes	57	12,2
Use of Parenteral Nutrition		
No	357	76,3
Yes	111	23,7
Peripherally Inserted Central Catheter		
No	360	76,9
Yes	108	23,1
Umbilical Venous Catheter		
No	287	61,3
Yes	181	38,7
Umbilical Arterial Catheter		
No	457	97,5
Yes	12	2,5
Invasive Blood Pressure		
No	463	98,9
Yes	5	1,1
Use of Antibiotic		
No	262	56
Yes	206	44
Phototherapy		
No	299	63,9
Yes	169	36,1
Total	**468**	**100**

Source: Service Management System - HOSPITALAR, 2020.

Prematurity was the main cause of admission to the neonatal unit, with 200 (42.7%) newborns, followed by respiratory disorders, 135 (28.8%), and metabolic disorders, such as hypoglycemia, 49 (10.5%). During hospitalization, there was a prevalence of diagnoses related to respiratory disorders, 266 (56.8%), followed by neonatal infection, 185 (39.5%), and neonatal jaundice, 171 (36.5%). Newborns who had no diagnosis other than the hospitalization diagnosis corresponded to 126 (26.9%) (Table 4).

Follow-up in a Basic Health Unit was the main demand for care for newborns after hospital discharge, with 431 (92.1%). The NBs who were discharged with medication use were 159 (34%) and 145 (31%) in follow-up with some medical specialty (Table 4).

Table 4. Reasons for hospitalization of NBs in a NICU and IMCU, diagnoses during hospitalization, and care demands after discharge from a maternity hospital in the Northeast of Santa Catarina between January and December 2019

Variables	n	%
Reason for hospitalization		
Prematurity	200	42,7
Respiratory Disorders	135	28,8
Metabolic Disorders	49	10,5
Neonatal Jaundice	23	4,9
Social Case (adoption)	16	3,4
Neonatal Infection	12	2,6
Syndrome/ Malformation	12	2,6
Other reasons	21	4,5
Diagnosis during hospitalization*		
Respiratory Disorders	266	56,8
Neonatal Infection	185	39,5
Neonatal Jaundice	171	36,5
Metabolic Disorders	69	14,7
Incipient Metabolic Bone Disease (IMBD)	33	7,1
Anemia	32	6,8
Cardiovascular Disorders	30	6,4
No other diagnosis	126	26,9
Others	85	18,2
Care demands at discharge**		
Follow-up in Basic Health Unit	431	92,1
Medication demand	159	34
Follow-up with medical specialties	145	31
Outpatient follow-up	112	23,9
Others	31	6,6
Total	**468**	**100**

Source: Service Management System - HOSPITALAR, 2020.
*Some newborns with multiple diagnoses.
**Some newborns with multiple care demands at hospital discharge.

Discussion

Regarding maternal characteristics, it is noted that there was a predominance of the age group from 20 to 34 years old, with complete high school, single fetus, parity of up to two children, with six to ten prenatal consultations. The predominant mode of delivery was cesarean section, and they were mostly from the city of Joinville-SC. An equivalent study, carried out in the NICU of a Regional Hospital located in Piauí between 2017 and 2018, obtained similar information regarding the mothers of newborns, revealing that they were of childbearing age, had completed high school, had a single pregnancy, and had more than five prenatal consultations.[16]

Some mothers did not perform prenatal care or did not have information about prenatal care. Toxic habits were also identified in some mothers in the study. The presence of pathological conditions inherent to the pregnancy, such as gestational diabetes mellitus and hypertensive syndromes during pregnancy, together with genitourinary disorders, such as urinary tract infection, were in greater proportions in the findings of this research.

Preciado et al.[17] in their study, carried out in a high-complexity obstetric service of the Clínica Universitaria Bolivariana de Medellín-Colombia, from January 2012 to December 2015, analyzed the incidence of neonatal complications in 203 NBs of puerperal women who had gestational diabetes, revealing that 27.6% of these neonates have at least one complication, especially hyperbilirubinemia, (16.7%), and respiratory distress syndrome, (9.9%). A bibliographic review pointed out that the main complication for newborns related to gestational urinary tract infection is prematurity, which is also an important risk factor for low birth weight, hospitalization of neonates, and fetal death.[18]

Research shows the importance of performing prenatal care, with nurses being able to offer preventive, educational, and care follow-up.[4,5] Prenatal consultations are essential to ensure a healthy pregnancy and safe delivery, reducing maternal and perinatal problems.[4,5] Nurses must be active in prenatal care, creating strategies for pregnant women to adhere to follow-up appointments.[4] Other favorable strategies are groups of pregnant women with educational actions about the gestational period, the process of linking to the maternity unit, puerperal consultation, guidance on the birth plan, teaching newborn care, breastfeeding, and family planning.[4,5]

Moura et al.[7] identified as the main risk factors for hospitalization in neonatal units: mothers aged 35 years or older, inadequate prenatal care, obstetric complications, and cesarean delivery. Reproductive planning plays a fundamental role in preventing unwanted pregnancies, and nurses need to intensify strategies for the care of this population.[5] It was found in this study that 16 (3.4%) of the NBs admitted to the neonatal unit were for social reasons, which corresponded to the 5th highest reason for hospitalization.

Studies indicate that gestational follow-up, life habits, and maternal sociodemographic characteristics may be associated with neonatal outcomes.[16,17] It is important to know the clinical and demographic profile of NBs for the implementation of strategies in order to prevent and mitigate morbidities and injuries of the binomial, resulting in positive impacts on public health and society.[16,19]

Regarding the characteristics of the NBs in this study, a prevalence of males, full-term and with adequate weight was identified. Neonates who had an Apgar score of less than 7 in the 1st minute of life corresponded to 126 (26.9%) and 38 (8.1%) in the 5th minute of life. Vieira et al.[20], in their study, compared newborns with Apgar scores below 7 in the first minute with Apgar scores between 7 and 10, which resulted in the association with adverse perinatal outcomes, increased risk of morbidity, neonatal mortality, perinatal infection, and respiratory distress syndrome when the Apgar score was low.

The length of hospital stay was less than seven days in this research. However, in another study, a period of hospitalization between two and three months was found, which can be explained by the isolated choice of the NICU, where, due to the severity of the patients, there is a tendency to remain hospitalized for a longer period.[1]

An important finding in the study was that 80.1% of the NBs were discharged from the hospital on exclusive breastfeeding. It is known that hospitalization in a NICU can represent a challenging context for the effectiveness of breastfeeding, especially when there is separation from the binomial.[21] A study with a preterm newborn in a maternity hospital in Manaus in 2015 showed a similar result, with the highest prevalence of NBs, 512 (93.1%), with high exclusive breastfeeding.[21] A systematic review identified that skin-to-skin contact between mother and baby, family and community support, health team training, and maternal and child health policies are essential for successful breastfeeding during and after hospital discharge of the NB in the neonatal unit.[22]

Studies demonstrate an increasing trend in breastfeeding indicators in Brazil in recent decades.[21,23] However, socioeconomic, cultural, and technological factors can bring notable differences related to breastfeeding.[22] Nurses are important for implementing policies and programs for the promotion, protection, and support of breastfeeding in order to achieve the World Health Organization's breastfeeding goals for 2030.[23]

The therapeutic resources most used by newborns in this study were non-invasive ventilation, umbilical venous catheter, antibiotic therapy, and phototherapy. Damian et al.[24], in their study with newborns admitted to a NICU, found similar results in relation to gender, reasons for hospitalization, and ventilatory support.

The main reasons for hospitalization are prematurity, respiratory distress, and neonatal infection together with neonatal jaundice, which are also the main diagnoses during hospitalization. Among the complications mentioned in the study by Damian

et al.[24], we found: jaundice (27.0%), followed by apnea (22.1%), and anemia (15.6%), which presented higher percentages than in this study. Another study highlighted prematurity as the predominant cause of the hospitalization of NBs, accompanied by low birth weight, neonatal infections, and respiratory disorders.[1]

In China, a study with 43,289 hospitalized newborns from 86 hospitals showed that preterm newborns represented 26.2% and that the three main diseases during the neonatal period were jaundice, pneumonia, and hypoxic-ischemic encephalopathy.[25]

In the present study, the main care demands identified for the NB after hospital discharge were follow-up at the basic health unit, medication demands, and follow-up with medical specialties.

A study characterized the profile of 138 NBs with a chronic condition discharged from a neonatal unit, 111 of whom were hospital discharged to their homes, of which 64.9% were dependent on medication, 59.5% had a need for differentiated development monitoring in relation to children of the same age, and 8.1% were technology dependent.[19] The fact that, in this study, 182 (27.1%) NBs were transferred to other hospitals, and thus did not participate in the final sample, may explain the lower prevalence of demands related to technological dependence, such as the use of invasive devices at the time of hospital discharge, as these procedures are not performed in the studied maternity hospital.

According to the Child and Adolescent Health Measurement Initiative (2016-2017), approximately 18.8% of children and adolescents, aged 0 to 17 years live with some special health needs in the USA.[26] Living with children with special health needs implies adjustments and family reorganization. Kirchchoff et al.[27] highlight the importance of nurses empowering family caregivers and providing adequate information and knowledge to perform care safely and skillfully.

Alcântara et al.[28], in their study, highlight the preparation that must be carried out for parents to receive their baby at home and the importance of childcare, immunization, and care for child growth and development. Since the follow-up at the Basic Health Unit presented greater demand for care after hospital discharge, the importance of Programa Bebê Precioso (Precious Baby Program) in Joinville-SC stands out. This program proposes the follow-up of NBs discharged from the NICU in the city, thus reducing morbidity and mortality, preventable diseases, and providing comprehensive care to children at risk aged 0 to 11 months and 29 days, promoting counter-referral to primary care.[29]

This study has limitations, such as not performing extended statistical analyses, making it impossible to establish possible associations between maternal and newborn variables. As a strong point of the study, it was initiated by an internal demand from the hospital to characterize the NBs admitted to the neonatal unit, in addition to the number of participants and the 12 months period studied.

Conclusion

It is concluded that most of the hospitalizations in the NICU and IMCU in the studied period were of full-term newborns with adequate birth weight, with a prevalence in the diagnoses of respiratory distress and neonatal infection, and the main reason for hospitalization was prematurity. Follow-up at the Basic Health Unit and medication demands after hospital discharge had the highest proportion in the study.

As for the mothers of newborns, the highest prevalence was of women aged between 20 and 34 years, with complete secondary education, who had six to ten prenatal consultations. The pathological conditions associated with pregnancy included genitourinary disorders, gestational diabetes mellitus, and hypertensive syndromes during pregnancy.

This study provided the identification of the profile of NBs admitted to a neonatal unit, the maternal characteristics, and gestational complications. Being able to strengthen nurses' actions in the contexts of primary, secondary, and tertiary care for maternal and child care during family planning, prenatal care, childbirth, and post-birth, contributing to the reduction of maternal and child morbidity and mortality, which is a major problem of public health.

Authors' contributions

Gumboski J, Silva DI, and Schultz LF participated in the research question design, methodological design, search and statistical analysis of research data, interpretation of results, and scientific article writing. Henrique LUC participated in the data interpretation and in the article writing. All authors have reviewed and approved the final version and are in agreement with its publication.

Conflicts of interest

No financial, legal or political conflicts involving third parties (government, companies and private foundations, etc.) were declared for any aspect of the submitted work (including, but not limited to grants and funding, participation in an advisory board, study design, preparation manuscript, statistical analysis, etc.).

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References

1. Freitas MCN, Sousa AOB, Oliveira Cabral SAA, Alencar MCB, Guedes MSSE, Oliveira GF. Caracterização dos Recém-Nascidos Internados em Unidades de Terapia Intensiva. Id on Line Rev. Mult. Psic. 2018;12(40):228-42. https://doi.org/10.14295/idonline.v12i40.1110

2. Bernardino FBS, Gonçalves TM, Pereira TID, Xavier JS, Freitas BHBM, Gaíva MAM. Trends in neonatal mortality in Brazil from 2007 to 2017. Ciênc. Saúde Colet. 2022;27(2):567-78. https://doi.org/10.1590/1413-81232022272.41192020

3. Ministério da Saúde (Brasil), Secretaria de Vigilância em Saúde. Boletim Epidemiológico Vol.52 - Nº 37: Mortalidade infantil no Brasil [Internet]. Brasília: Ministério da Saúde; 2021. Available from: https://www.gov.br/saude/pt-br/centrais-de-conteudo/publicacoes/boletins/epidemiologicos/edicoes/2021/boletim_epidemiologico_svs_37_v2.pdf/view

4. Barreto ESS, Oliveira JS, Araújo AJS, Queiroz PES, Schulz RS. Reduction of maternal mortality and the nurse's acting. Rev Enf Contemp. 2018;7(1):20-6. https://doi.org/10.17267/2317-3378rec.v7i1.1370

5. Jesus DS, Rocha FMD, Winkelstroter L, Pinheiro SS. Assistance against infractions in primary care as an instrument to reduce maternal mortality. Revista Multidisciplinar do Nordeste Mineiro. 2021;3:1-22. Available from: https://revistas.unipacto.com.br/storage/publicacoes/2021/696_assistencia_de_enfermagem_na_atencao_primaria_como_instrumento_de_redu.pdf

6. World Health Organization. Infant mortality rate (between birth and 11 months per 1000 live births) [Internet]. Available from: https://www.who.int/data/gho/data/indicators/indicator-details/GHO/infant-mortality-rate-(probability-of-dying-between-birth-and-age-1-per-1000-live-births)

7. Moura BLA, Alencar GP, Silva ZP, Almeida MF. Factors associated with hospitalization and neonatal mortality in a cohort of newborns from the Unified Health System in São Paulo. Rev. bras. epidemiol. 2020;23:e200088. https://doi.org/10.1590/1980-549720200088

8. Sávio JM, Santos CMS, Souza RL, Tomasi CD. Clinical profile of newborns admitted on a South catarinense ICU. Revista Inova Saúde. 2016;5(1):117-28. http://dx.doi.org/10.18616/is.v5i1.1915.117-128

9. Naidon AM, Neves ET, Silveira A, Ribeiro CF. Gestation, delivery, birth and hospitalization of newborns in neonatal intensive therapy: mother's report. Texto Contexto Enfermagem. 2018;27(2):e5750016. https://doi.org/10.1590/0104-070720180005750016

10. Silva LJ, Leite JL, Silva TP, Silva IR, Mourão PP, Gomes TM. Management challenges for best practices of the Kangaroo Method in the Neonatal ICU. Rev Bras Enferm. 2018;71(suppl 6):2783-91. https://doi.org/10.1590/0034-7167-2018-0428

11. Bezerra Segundo WG, Barros RMO, Camelo NMM, Martins AEBV, Ramos HDN, Almeida CVB. A Importância das Unidades de Terapia Intensiva (UTIN) e de Cuidados Intermediários Neonatal (UCIN) para Recém-Nascidos Prematuros. Rev. Nova Esperança. 2018;16(2):85-90. https://doi.org/10.17695/issn.2317-7160.v16n2a2018p85-90

12. Cardoso DJS, Schumacher B. Epidemiological characteristics of neonatal admissions in a public maternity. Rev. enferm. UFPI [Internet]. 2017;6(4):28-32. Available from: https://pesquisa.bvsalud.org/portal/resource/pt/biblio-1033955

13. Secretaria de Estado da Saúde de Santa Catarina. Maternidade Darcy Vargas. Joinville, 2020. Available from: https://www.mdv.saude.sc.gov.br/

14. Secretaria de Estado da Saúde do Paraná. Caderno de Atenção à Saúde da criança recém-nascido de risco [Internet]. Available from: https://www.saude.pr.gov.br/sites/default/arquivos_restritos/files/documento/2020-07/pdf1.pdf

15. Resolução no 466, de 12 de dezembro de 2012 (Brasil). Resolve aprovar diretrizes e normas regulamentadoras de pesquisas envolvendo seres humanos. [Internet]. Diário Oficial da União. 2012. Available from: https://conselho.saude.gov.br/resolucoes/2012/Reso466.pdf

16. Oliveira ALCB, Lopes BA, Costa GR, Costa AA, Moraes LMV, Maia JM, et al. Maternal and newborn characteristics admitted in na neonatal intensive care unit. Revista Enfermagem Atual In Derme. 2020;93(31):e-020022. https://doi.org/10.31011/reaid-2020-v.93-n.31-art.703

17. Preciado LML, Domínguez MCP, Morales JLF, Calle KC, Campo MNC, Castro DPC. Clinical profile of patients with gestational diabetes and incidence of neonatal complications in a Colombian maternal-fetal reference center. Rev. chil. obstet. ginecol. 2020;85(3):210-20. http://dx.doi.org/10.4067/S0717-75262020000300210

18. Oliveira LP, Araujo RMA, Rodrigues MD. Unirary tract in pregnancy and its repercussions for the newborn: an integrative review. REAEnf. 2021;11:e7612. https://doi.org/10.25248/reaenf.e7612.2021

19. Tavares TS, Duarte ED, Silva BCN, Paula CM, Queiroz MPM, Sena RR. Profile characterization of children discharged from neonatal units presenting chronic conditions. R. Enferm. Cent. O. Min [Internet]. 2014;4(3):1322-35 Available from: http://www.seer.ufsj.edu.br/index.php/recom/article/view/802

20. Viera OA, Rendon MT, Apaza DH. Perinatal outcome of newborns with low Apgar score, at the Hospital Hipólito Unanue Tacna-Peru, 2002-2016. Rev Peru Ginecol Obstet. 2019;65(1):21-6. http://dx.doi.org/10.31403/rpgo.v65i2147

21. Leite PFP, Freire AIMM, Ribeiro SPA, Cabral LN, Guilherme JP. Breastfeeding incidence at discharge of the third stage of the kangaroo method of maternity Ana Braga. Revista de Ciências da Saúde da Amazônia. 2016;1:45-68. Available from: http://periodicos.uea.edu.br/index.php/cienciasdasaude/article/view/410

22. Renfrew MJ, Dyson L, McCormick F, Misso K, Stenhouse E, King SE, et al. Breastfeeding promotion for infants in neonatal units: a systematic review. Child Care, Health Dev. 2010;36(2):165-178. https://doi.org/10.1111/j.1365-2214.2009.01018.x

23. Levy B. Pesquisa revela dados inéditos sobre amamentação no Brasil [Internet]. Rio de Janeiro: Fiocruz; 2021. Available from: https://portal.fiocruz.br/noticia/pesquisa-revela-dados-ineditos-sobre-amamentacao-no-brasil

24. Damian A, Waterkemper R, Paludo CA. Profile of neonates hospitalized at a neonatal intensive care unit: a cross-sectional study. Arq. Ciênc. Saúde. 2016;23(2):100-5. http://dx.doi.org/10.17696/2318-3691.23.2.2016.308

25. Wei K-L, Yang Y-J, Yao Y-J, Du L-Z, Wang Q-H, Wang R-H, et al. Epidemiologic survey on hospitalized neonates in China. Transl Pediatr. 2012;1(1):15-22. https://doi.org/10.3978%2Fj.issn.2224-4336.2011.10.01

26. Santos RP, Severo VRG, Kegler JJ, Jantsch LB, Cordeiro D, Neves ET. Characterization of children with special health care needs and caregivers in a teaching hospital. Cien Cuid Saude. 2020;19:e46724. https://doi.org/10.4025/ciencuidsaude.v19i0.46724

27. Kirchchoff BRB, Diogo PFT, Grigol AM, Mendes JS, Schultz LF. The experience of the Family caregiver of a child with tracheostomy at home. Rev Soc Bras Enferm Ped. 2020;20(1):6-12. http://dx.doi.org/10.31508/1676-3793202000002

28. Alcântara KL, Brito LLMS, Costa DVS, Façanha APM, Ximenes LB, Dodt RCM. Family guidelines needed for a safe hospital of the premature newborn: integrative review. Rev enferm UFPE on line [Internet]. 2017;11(2):645-55. Available from: https://periodicos.ufpe.br/revistas/revistaenfermagem/article/view/11984

29. Aires LCP, Santos EKA, Bruggemann OM, Backes MTS, Costa R. Reference and counter-reference health care system of infant discharged from neonatal unit: perceptions of primary care health professionals. Esc Anna Nery [Internet]. 2017;21(2):e20170028. Available from: https://www.scielo.br/j/ean/a/g3L54ypryzYyJNvPZzzVrkJ/abstract/?lang=pt