









PUERPERAL COMPLICATIONS IN A MEDICALIZED MODEL OF CHILDBIRTH CARE

COMPLICAÇÕES PUERPERAIS EM UM MODELO MEDICALIZADO DE ASSISTÊNCIA AO PARTO

COMPLICACIONES PUERPERALES EN UN MODELO MEDICALIZADO DE ATENCIÓN AL PARTO

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ABSTRACT

Objective: to analyze the puerperal complications in women assisted for childbirth by the public health sector. **Method:** this is a cross-sectional study with 358 women in the postpartum period who had their childbirth financed by the Unified Health System in a city in southern Brazil. The following procedure was carried out for data collection: an interview with the puerperal woman on hospital admission - at least 12 hours after delivery; consultation of the maternal record to obtain information regarding sociodemographic characteristics, interventions and complications; and telephone contact with the puerperal woman 40 days after delivery to assess possible late complications. Complications were analyzed according to sociodemographic and obstetric data, newborn data, and obstetric intervention performed during labor or delivery. The association analysis was assessed using the chi-square calculation, with a significance level of $p \leq 0.05$. **Results:** among the women in the postpartum period, 31.3% had at least one puerperal complication and the need for antimicrobials was the most frequent (12.8%) and placental complications the least frequent (2.5%). Cesarean section was associated with the use of antimicrobials (OR = 2.2; $p = 0.0211$) and readmission (OR = 9.9; $p = 0.007$). The greater the number of interventions performed, there was a progressive increase in puerperal complications, which indicates that the studied hospitals still adopt the medicalized model of childbirth care, with high rates of obstetric interventions. **Conclusion:** the high rate of puerperal complications was associated with the medicalized obstetric model, which can be evidenced by the complications independent of the type of delivery.

Keywords: Medicalization; Delivery, Obstetric; Postpartum Period; Cesarean Section.

RESUMO

Objetivo: analisar as complicações puerperais em mulheres atendidas para o parto pelo setor público de saúde. **Método:** estudo transversal com 358 puérperas que tiveram parto financiado pelo Sistema Único de Saúde em município do Sul do Brasil. Para a coleta de dados foram realizadas: entrevista com a puérpera na internação hospitalar - pelo menos 12 horas após o parto; consulta ao prontuário materno para levantar informações referentes às características sociodemográficas, intervenções e complicações; e contato telefônico com a puérpera 40 dias após o parto para levantamento de possíveis complicações tardias. As complicações foram analisadas segundo dados sociodemográficos, obstétricos, dados do recém-nascido e intervenção obstétrica realizada durante o trabalho de parto ou parto. A análise de associação foi avaliada por meio do cálculo do qui-quadrado, com nível de significância $p \leq 0,05$. **Resultados:** das puérperas, 31,3% tiveram pelo menos uma complicação puerperal cuja necessidade de antimicrobianos foi a mais frequente (12,8%) e as complicações placentárias as menos frequente (2,5%). A

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cesariana esteve associada à utilização de antimicrobianos (OR=2,2; $p=0,0211$) e à reinternação (OR=9,9; $p=0,007$). Foi observado progressivo aumento de complicações puerperais quanto maior o número de intervenções realizadas, o que indica que os hospitais estudados ainda adotam o modelo medicalizado de assistência ao parto, com elevados índices de intervenções obstétricas. **Conclusão:** a alta taxa de complicações puerperais esteve associada ao modelo obstétrico medicalizado, o que pode ser evidenciado pela ocorrência de complicações independentes do tipo de parto.

Palavras-Chave: Medicalização; Parto Obstétrico; Período Pós-Parto; Cesárea.

RESUMEN

Objetivo: analizar las complicaciones puerperales en mujeres atendidas en salud pública para el parto. **Método:** estudio transversal con 358 púerperas cuyo parto fue financiado por el Sistema Único de Salud en una ciudad del sur de Brasil. Para la recogida de datos se llevaron a cabo los siguientes procedimientos: entrevista con la púerpera internada en el hospital, al menos 12 horas después del parto; consulta del registro materno para obtener información sobre las características sociodemográficas, intervenciones y complicaciones; y contacto telefónico con la púerpera 40 días después del parto para evaluar posibles complicaciones tardías. Las complicaciones se analizaron de acuerdo con los datos sociodemográficos, obstétricos, del recién nacido y de la intervención obstétrica realizada durante el trabajo de parto o el parto. El análisis de asociación se evaluó mediante el cálculo de chi-cuadrado, con un nivel de significación de $p \leq 0,05$. **Resultados:** el 31,3% de las mujeres tuvo al menos una complicación puerperal y necesidad de antimicrobianos como más frecuente (12,8%) y complicaciones placentarias como menos frecuente (2,5%). La cesárea se asoció con el uso de antimicrobianos (OR = 2,2; $p = 0,0211$) y reingreso (OR = 9,9; $p = 0,007$). Se observó el aumento progresivo de las complicaciones puerperales cuanto mayor era el número de intervenciones realizadas, lo cual indica que los hospitales estudiados aún adoptan el modelo medicalizado de atención al parto, con mayores tasas de intervenciones obstétricas. **Conclusión:** la alta tasa de complicaciones puerperales se asoció con el modelo obstétrico medicalizado, lo cual se puede constatar por la aparición de complicaciones, independientemente del tipo de parto.

Palabras clave: Medicalización; Parto Obstétrico; Período Posparto; Cesárea.

INTRODUCTION

Some interventions or procedures during labor and delivery, such as trichotomy, labor induction, amniotomy, lithotomy position, episiotomy, and cesarean surgery are harmful to women's health when used without criteria.¹⁻³ In Brazil, childbirth care has its pillars in the biomedical, interventional model, because in addition to the cesarean section being an indiscriminate procedure, normal delivery is highly medicalized, and the care provided uses many

interventions and is associated with the high rate of maternal morbidity and mortality.⁴ For example, a study in the South region found that interventional models of childbirth care are prevalent and the care provided does not advocate the best scientific evidence.⁵

Thus, although childbirth is a physiological event, some complications often result from interventions practiced by the health team during labor and delivery. These complications can cause the search for care in the postpartum period and interfere in the woman's return to normal daily activities.⁶

Many studies on maternal mortality and severe morbidity (near-miss)⁷ have been carried out; however, the puerperal complications of mild to moderate intensity are less frequent in the literature, despite being premonitory signs of more serious complications, requiring early attention.

A study in a municipality in the south of Brazil on the main causes of hospitalizations for maternal disorders found that the high rate of obstetric complications (50.0%) is similar to the high rate of cesarean section (51.7%).⁸ Another study in the same municipality as this one found high rates of cesarean sections and with a tendency to increase,⁹ as well as in most Brazilian municipalities,¹⁰ characterizing the excessive use of technology around childbirth and a medicalized obstetric care model.⁵

Considering the importance of knowing puerperal complications and their possible relationship with the various interventions the women in the postpartum period are exposed, this study aimed to analyze puerperal complications in women assisted for childbirth by the public health sector and the care model adopted.

METHOD

This is a descriptive, cross-sectional study with women living in a municipality in the south of Brazil, hospitalized for childbirth in a joint accommodation unit in two reference hospitals by the Unified Health System (*Sistema Único de Saúde* - SUS) for childbirth care.

The sample was calculated considering 2,168 births of resident women who had a child in 2011 by SUS, adding 10% for possible losses, with a 95% confidence level, 5% error, and 50% prevalence (unknown), totaling 358 women. The unknown prevalence was used by the varied proportion of complications to be studied, in different contexts of childbirth care, at national and international levels. For the two hospitals to be equally represented, stratification considered the percentage of births in each hospital. Thus, 67 women were interviewed in hospital 1 and 291 in hospital 2.

The inclusion criteria were women in the postpartum period, living in the studied municipality, any age, in physical conditions to participate in the study, with children over 500 g and who were in joint accommodation. There were no losses because new

participants were included until reaching the number previously defined in the period from December 2012 to April 2013.

Women were initially approached during the hospitalization period, at least 12 hours after delivery, using a questionnaire with questions regarding socioeconomic aspects, obstetric history, and data on the newborn.

We obtained information on the interventions during labor and delivery and puerperal complications by consulting the medical records of the hospitalization studied, in two moments: on the day of the interview and 40 days after delivery. We consulted all forms, both for the clinical evolution of the doctor and of the Nursing team, the expense paper sheet of the surgical center, the partogram, the medication prescription, with special attention to the use of postpartum antimicrobials, procedures performed, blood transfusion, curettage material, notes of abnormalities or complaints of the puerperal woman.

We analyzed sociodemographic variables (age, with a partner, race/skin color, education level, occupation, family income, and religion), variables about the current and progressive obstetric history of the parturient (such as gestational age, birth weight of the newborn and number of pregnancies) and information on care data: which professional assisted the delivery and the place of delivery. For vaginal delivery, we also considered the professional who assisted the delivery in the expulsive period.

The medicalization of childbirth care was analyzed using the following obstetric interventions: trichotomy; labor induction/conduction; episiotomy; amniotomy; lithotomy position; and cesarean.⁸ These interventions are classified as clearly harmful practices and should be eliminated in childbirth care or used with restriction in the case of episiotomy and cesarean section.² The type of vaginal delivery was categorized as natural (without interventions) and medicalized (at least one intervention). This information was important for the definition of the care model adopted in the researched hospitals since these actions do not characterize good practices for the birth and the places with a high prevalence of these procedures can be considered as an interventionist care model.⁵

The puerperal complications considered for an association analysis with obstetric interventions were those indicative of complications in hospital care: fever; increased bleeding/hemorrhage; phlogistic signs in surgical wounds; puerperal infection; the need for antimicrobial, blood transfusion and readmission in the postpartum period; uterine complications (atony, hypotonia and the need for hysterectomy); and placental complications (retention, need for curing or curettage after delivery).

As bleeding is not measurable and may not be registered in the medical record, the need for blood transfusion was analyzed, as it may indicate excessive bleeding with consequent hemodynamic and blood dysfunction. Also, the infection may not be registered in the clinical evolution records of the doctor or the Nursing team. Therefore, we researched the use of antimicrobials, as they are items

of prescription that are always present in medical records. We did not consider the antimicrobial administered before delivery or during cesarean section, only those prescribed in the puerperium.

We also considered "present" the increased bleeding/hemorrhage when described by at least one professional during hospitalization. Fever was considered "present" if there was a record of at least one temperature measurement above 37.5 °C. Phlogistic signs in the surgical wound (episiorrhaphy, laceration suture, and abdominal suture of cesarean section) were considered when there was at least a record of edema, heat, redness, exudate, and dehiscence by at least one professional.

For the placental complication, we researched ultrasound exams performed in the medical record, with procedures such as curing and curettage. The uterine complication was considered present when atony, hypotonia, rupture, inversion, and hysterectomy were recorded by at least one professional or when a medical and surgical procedure was applied to reverse the clinical condition, such as the use of uterotonics, uterine massage, non-surgical compression (bimanual compression or uterine tamponade) or laparotomy.

The information described as the puerperal infection was often not found in the professionals' records, so this information was considered present when we found endometritis, chorioamnionitis, puerperal infection, and lochia with a foul or purulent odor.

After 40 and 50 days of delivery, we made telephone contact with the women to investigate puerperal complications after hospital discharge (late). We highlight that this contact was intended to improve the information collected in the medical records, and not to follow up the interviewee or identify the time and/or place of the complication. We use a script for the telephone interview with the following questions: "Did you have a fever in the 40 days after delivery?"; "Did you check it with a thermometer?"; "What was the temperature?"; "Did you have any large bleeding in the 40 days after delivery or did the bleeding persist for more than a month?"; "Did you have inflammation or infection at the points of surgery or cut in the perineum?"; "Did you need to take any medication or antibiotics? Which one?"; "Did you have any infections after giving birth? Which one?"; "Did you have a problem with your uterus? Which one?"; "Did you need to be readmitted to the hospital after delivery?"; "Was there any other complication in that period that you did not mention and that you think is important?" We excluded febrile causes due to breast inflammation or any inconsistent information from the analysis.

For the descriptive and inferential analysis of the data, we used a chi-square association test and a linear trend chi-square test (in the case of the ordered variables), considering α of 5%, using the Statistic 7 software. We also used the Odds Ratio (OR) to measure the magnitude of the association between the variables and their respective confidence interval (95% CI), with the statistical analysis carried out using the Epi Info 7 software.

All women signed an informed consent form (ICF) agreeing to participate in the research. For adolescent mothers, the legal guardian authorized participation. The development of the study was following the recommendations of Resolution 466/12 of the National Commission for Ethics in Research (*Comissão Nacional de Ética em Pesquisa* - CONEP), with the project approved under Opinion 170,704/12.

RESULTS

Most of the 358 women in the postpartum period in the study were over 19 years old (81.0%), with a partner (88.5%), having a family income below three minimum wages (70.1%), and having some religion (79.3%). More than half did not finish high school (58.1%), had a paid job (51.4%), and were white (51.1%). Regarding the obstetric characteristics, 41.62% were primiparous and for most of them had a gestational age over 37 weeks (85.2%), with the newborn weighing more than 2,500 g at delivery (90.2%). Most of them (97.8%) had at least one intervention during childbirth, with the cesarean section being the most frequent (57.0%) and 112 (31.28%) had at least one postpartum complication (Table 1).

We highlight that the proportion of women with complications was higher among those aged 19 years old or less (20.5%; OR = 1.2), who did not finish high school (59.8%; OR = 1, 1), without a partner (16.1%; OR = 1.9), primiparous (46.4%; OR = 1.3), with gestational age less than 37 weeks at the time of delivery (20.5%; OR = 1.9), who had children weighing less than or equal to 2,500 g (15.2%; OR = 2.3), who had cesarean delivery (59.8%; OR 1.2) or had an episiotomy (22, 3%; OR = 1.9) (Table 1).

The most prevalent puerperal complications were the need for antimicrobials (12.8%) and the signs of inflammation in the surgical wound (11.7%). Although both are factors indicative of infectious status, the registration with the nomenclature of postpartum infection only occurred in 4.2% of the medical records consulted. The third most frequent complication was the increased bleeding/hemorrhage (8.7%), but without specifying the cause because the medical records on uterine and placental complications had lower percentages (6.1 and 2.5%, respectively) (Table 2).

When we analyzed complications according to the type of delivery, separated into medicalized and cesarean delivery, despite some similar proportions, there were differences in complications, especially regarding the use of antimicrobials (OR = 2.2; $p = 0.0211$) and the need for readmission (OR = 9.9; $p = 0.007$), which were higher in cesarean section (Table 3).

In all types of deliveries in the study, 204 (57.0%) were cesarean and 151 (42.2%) induced. There was a reduced number - only eight women (2.2%) - with a natural delivery, in which the only one had two complications, increased bleeding/hemorrhage and a uterine complication, requiring pharmacological support to reverse the condition (data not shown in the Table). Due to the reduced

number of vaginal deliveries without interventions, this type of delivery was excluded from the comparative analysis and Table 2.

When analyzing the occurrence of at least one complication related to the interventions in an accumulated way, even without statistical significance, a progressive increase in the complication percentages was observed as the greater was the number of interventions received, from 28.2% of women with at least one complication and only one intervention performed in the delivery, for 42.3% of women with at least one complication and who received four or more interventions (Table 4).

In the 154 vaginal deliveries, 131 (85.1%) were in the lithotomy position, 58 (37.7%) had an episiotomy, 132 (85.7%) were performed in the operating room and in 150 of them (97.5%) the main professional responsible for its performance was the doctor (data not shown in the Table).

DISCUSSION

The results obtained in this research showed a high prevalence of puerperal complications and also in the two hospitals under study, the characteristics of obstetric care are consistent with the medical model - characterized by the representative number of cesarean surgeries and the fact that almost all women in the postpartum period have suffered at least one other type of intervention - factors that may have influenced the prevalence of puerperal complications. The natural delivery occurred in rare exceptions, probably unexpectedly and in women who were admitted already in an expulsive period.

The prevalence of puerperal complications in this study (31.3%) was higher than in a population survey conducted in the city of *Natal, Rio Grande do Norte*, which addressed women of childbearing age and who had at least one pregnancy in the last five years. Based on the woman's recall, the study aimed to identify complications in the pregnancy/postpartum period, with a rate of 21.2% of maternal morbidity found.¹¹ It was also higher than in a survey that interviewed 7,058 women hospitalized for abortion or delivery in six maternity hospitals in the state of *São Paulo*, which found that 12.8% of them had some complications during delivery, 4.1% in the puerperium and 0.4% required hospitalization in intensive care units.¹²

The differences in the results of the three studies may be due to the moment of data collection because when limited to the period of hospitalization, in the immediate postpartum period, information on complications can be underestimated, as they have not yet manifested them, while long after delivery (up to five years), they can be limited by memory failure.

The most frequent complications were the need for antimicrobials in the postpartum period and signs of inflammation in the surgical wound. Such notes may indicate infectious aspects, corroborating the result of a cohort study conducted in the

Table 1 - Distribution of women according to the puerperal complications and sociodemographic, obstetric, newborn, and intervention variables. Maringá, Paraná, Brazil, 2013

Variables	Total		Complication				OR
			Yes (n=112)		No (n=246)		
	N	%	N	%	N	%	
Age (yearsold)							
≤19	68	19.0	23	20.5	45	18.3	1.2
≥ 20	290	81.0	89	79.5	201	81.7	
High school finished							
No	208	58.1	67	59.8	141	57.3	1.1
Yes	150	41.9	45	40.2	105	42.7	
Partner							
No	41	11.5	18	16.1	23	9.3	1.9
Yes	317	88.5	94	83.9	223	90.7	
Occupation							
Not paid	174	48.6	51	45.5	123	50.0	0.8
Paid	184	51.4	61	54.5	123	50.0	
Race/skincolor							
White	183	51.1	60	53.6	123	50.0	1.2
Black/Brown/others	175	48.9	52	46.4	123	50.0	
Family Income (minimumwages*)							
≤ 3	251	70.1	78	69.6	173	70.3	1.0
≥ 4	107	29.9	34	30.4	73	29.7	
Religion							
With religion	284	79.3	91	81.3	193	78.5	1.2
Without religion	74	20.7	21	18.8	53	21.5	
Nº gestations							
Primiparous	149	41.6	52	46.4	97	39.4	1.3
Multiparous	209	58.4	60	53.6	149	60.6	
Gestational age (weeks)							
<37	53	14.8	23	20.5	30	12.2	1.9
≥37	305	85.2	89	79.5	216	87.8	
Weight of the NB at birth (g)							
<2.500	35	9.8	17	15.2	18	7.3	2.3
≥2.500	323	90.2	95	84.8	228	92.7	
Intervention**							
Caesarean	204	57.0	67	59.8	137	55.7	1.2
Labor induction/conduction	151	42.2	50	44.6	101	41.1	1.2
Lithotomy	131	36.6	39	34.8	92	37.4	0.4
Trichotomy	81	22.6	27	24.1	54	22.0	1.1
Amniotomy	77	21.5	25	22.3	52	21.1	1.1
Episiotomy	58	16.2	25	22.3	33	13.4	1.9

*Minimum wage in Brazil in force in 2013/01/01: R\$678.00.

**More than one answer accepted.

Table 2 - Prevalence of puerperal complications. *Maringá, Paraná, Brazil, 2013*

Puerperal complications*	N	%
Need for antimicrobials	46	12.8
Phlogistic signs in the surgical wound	42	11.7
Increased bleeding/hemorrhage	31	8.7
Fever	24	6.7
Uterine complications**	22	6.1
Puerperium infection	15	4.2
Need for postpartum readmission	14	3.9
Need for blood transfusion	09	2.5
Placental complications***	09	2.5

*More than one answer accepted.**Hypotonia, atony, need for hysterectomy.
 ***Retention or need for postpartum uterine curettage.

municipality of *Pelotas-RS*, which analyzed puerperal complications through interviews at home. These complications were divided into early (up to 48 months) and late (up to six years), totaling 11.4 and 24.1%, respectively, with puerperal infection as the most frequent early complication with 3.4%.¹²

Increased bleeding/hemorrhage was the third most frequent complication in this study and also in the *Pelotas-RS* cohort study, reported by 1.7% of women.¹³ In the population survey in the city of *Natal-RN*, the rate of reported bleeding was 10.7%.¹⁶

In this study, complications were more prevalent in the postpartum period of the cesarean section, which agrees with the results of studies on complications resulting from this type.^{6,14-16} In this surgical procedure, the risk of dying is 3.5 times greater than in vaginal delivery and the risk of puerperal infection is five times greater.¹⁰ The main complications related to cesarean

Table 3 - Prevalence of puerperal complications according to the type of delivery. *Maringá, Paraná, Brazil, 2013*

Puerperal complications*	Delivery				OR
	Medicalized vaginal** n=146		Cesarean n=204		
	N	%	N	%	
Need for antimicrobial	12	8.2	34	16.7†	2.2
Phlogistic signs in the surgical wound	13	8.9	29	14.2	1.7
Fever	9	6.2	15	7.4	1.2
Increased bleeding/hemorrhage	15	10.3	15	7.4	0.7
Need for readmission	1	0.7	13	6.4†	9.9
Puerperal infection	4	2.7	11	5.4	2.2
Uterine complications***	13	8.9	8	3.9	0.4
Need for blood transfusion	4	2.7	5	2.5	0.9
Placental complications****	5	3.4	4	2.0	0.6
Total	76		134		

*More than one answer accepted.
 **Vaginal delivery with at least one intervention (trichotomy, induction/conduction, amniotomy, lithotomy, and episiotomy).
 ***hypotonia, atony, need for hysterectomy.
 ****retention or need for postpartum uterine curettage.
 †p<0,05; OR>1,0.

Table 4 - Puerperal complications according to number of use. *Maringá, Paraná, Brazil, 2013*

Intervention**	Complication*					Total	OR	p-value***
	Yes n=112		No n=246					
	N	%	N	%				
0	1	12.5	7	87.5	8	1.0		
1	34	28.2	84	71.2	118	2.8		
2	43	30.7	97	69.3	140	3.1		
3	23	34.8	43	65.2	66	3.7		
4 or +	11	42.3	15	57.7	26	5.1	0.1036	

*Women with at least one of the complications: fever; increased bleeding/hemorrhage; phlogistic signs in the surgical wound (episiotomy, laceration suture, abdominal surgical incision); the need for antimicrobials; the need for blood transfusion; puerperal infection; uterine complications (hypotonia, atony, need for hysterectomy); placental complications (retention or need for postpartum uterine curettage). **occurrence of the following interventions: cesarean section; trichotomy; induction; amniotomy; lithotomy; episiotomy. ***p corresponds to the chi-square test of a linear trend.

section are the infectious ones.¹⁵ In the Pelotas-RS cohort study, we found a difference in the percentages of infection according to the type of delivery, with 32.1% in vaginal deliveries and 67.9% in cesarean sections.¹³

The need for readmission also was a complication associated with the cesarean surgical procedure in this investigation. The relevance of this occurrence is related to the impact it can have on the lives of women, newborns, and their families and also on public spending.¹⁰

Another important complication identified was postpartum hemorrhage, which has been associated with labor induction¹⁷ and is the second leading cause of maternal death in Brazil, followed by puerperal infection.¹⁸ These two causes of death have been reduced in Brazil; however, the reduction in puerperal infection has been slower, and it may be related to the high rates of cesarean sections, which have even been showing an upward trend.¹⁰

The most frequent interventions are usually performed to shorten labor, without considering their own physiology.¹⁹⁻²¹ Furthermore, these interventions do not usually happen isolated, they are associated with each other, triggering a "cascade" effect,^{19,21} which in this study influenced at least one complication. Thus, the more interventions in labor and delivery, the more likely a complication will happen. This reinforces the importance that interventions in the natural process of giving birth only occur in specific and duly justified situations.¹ We highlight that childbirth with many interventions can also be considered violent, since the performance, without meanness, of procedures considered to be harmful, integrates the list of actions conceptualized as obstetric violence.²²

This study performed many interventions, exposing the parturient to unnecessary risks, and this reality reveals the care model predominantly adopted in Brazil.⁴ The medicalized care model is also evident when verifying that the doctor was the professional responsible for conducting almost all deliveries under study. That is, in the hospitals under evaluation, as already observed in other places, there is little or no role of obstetric nurses or midwives in monitoring women in labor and delivery.⁴ When obstetric nurses or midwives are active, there is more adoption of good practices around childbirth.²

The fact that most vaginal deliveries were performed in the operating room also confirms the big presence of the medicalized model.¹ The Ministry of Health recommends that the location of pre-delivery, delivery, and post-delivery be the same and that the women do not have to move to another place to give birth.²³ However, acceptance is difficult by professionals regarding the possibilities of giving birth naturally, in other positions, and the bed. In the current care model, delivery in another environment is always something unusual/planned and generates anxiety for the health professional, often precipitating taking the fetus and the placenta,

which can cause damage related to the undesirable neonatal outcome, as an infant and perinatal mortality is also associated with inadequate care at the time of delivery.²⁴ In the evaluated hospitals in this study, there are only rooms or wards for the period of labor, and the women in the postpartum period are transferred to the operating room in the expulsion period. The births that took place in other places were not planned for this to happen.

The discussion around the quality of care includes patient safety with the prevention of risks or injuries from the care process.²⁵ In this study, interventions during labor and delivery were related to complications, indicating that it is essential to review the current obstetric model because according to the results found, it increases unnecessary risks to the women in the postpartum period.

We also highlight that the Ministry of Health has made efforts to implement strategies, both in the public and private systems, to reduce the number of cesareans without clinical indication and interventions in labor and delivery.^{4,25} These changes will certainly provide women with a more positive experience in childbirth, favoring the maintenance of their physical and mental integrity.²⁵ However, changes are needed in posture and even in professional training that besides not being simple, it demands time and awareness.

Another aspect to be considered is that the sample studied was only from women assisted by SUS. As a high rate of cesarean sections was found, we can observe that the prevalence of complications found may also be related to socioeconomic factors. Research conducted with 604 puerperal women found that the risk of complications in the post-cesarean section is due to the socioeconomic status of childbirth, with the rates of complications being significantly higher among the less privileged social classes – women in the postpartum period from SUS - who did not have the same doctor in the prenatal and childbirth and who had decided cesarean sections intrapartum, representing an accumulation of risk of complications.⁶

A possible limitation of the study is the fact that we did not identify whether the puerperal complication occurred during hospitalization or after hospital discharge and if the source of the information came from the medical record or the postpartum woman's report. However, the use of different data collection strategies strengthens the study, allowing the identification of a greater number of puerperal complications, in addition to those in the medical record. The monitoring of these complications could be more effective if, in the return to health services - in cases of adverse signs or symptoms - and the follow-up of women in the postpartum period by primary care, professionals could notify this condition. This would certainly contribute to the awareness of health professionals and improve the assistance provided to the pregnant-puerperal period.

The results of this study can arise questions and reflections by the professionals working in the SUS about changing attitudes and understanding of the technocratic paradigm that influences their actions. We expect that managers could aware of the importance of the structural changes necessary for the real implementation of good practices during birth, the monitoring of complications resulting from the care process, and the hiring of professional obstetric nurses or obstetricians as a member of the multi-professional team.

Finally, with these results, we recommend future research including investigating whether there is a difference in the prevalence and types of puerperal complications according to the professional who performs the delivery; and researching when the postpartum period complications emerge.

CONCLUSIONS

This study showed a high prevalence of puerperal complications associated with a high rate of cesarean section and invasive procedures in vaginal delivery. Labor induction and cesarean section were procedures used to shorten labor and birth and were associated with uterine and infectious complications, respectively. This work method that aims to precipitate and finish birth quickly shows that the health system operates along industrial lines, in which agility is synonymous with efficiency, which is legitimized when complications do not occur in the same service, as in the case of infections that will appear after hospital discharge.

Investigating characteristics of obstetric care and its influence on puerperal conditions is necessary to define strategies for a change in the women in the postpartum period care since the current obstetric model uses excessive technology and procedures. For safer delivery care, we need careful investigations and that there is a change in obstetric practice with humanized behaviors, and based on scientific evidence. The humanized model of childbirth care provides for obstetric nurses working effectively in care because they intervene less frequently in the physiological process of labor and delivery.

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