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PREVALENCE OF MEDICALIZATION OF LABOR AND DELIVERY IN THE PUBLIC HEALTH NETWORK[1]

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ABSTRACT
The study aimed to verify the prevalence of medicalization of labor and delivery in the public health system. A cross-sectional study was carried out with 358 puerperal patients attended by the Unified Health System. Interviews were performed at the hospital in the postpartum period and the patient's charts and card were checked. The medicalization of labor was considered present when there was at least one of these interventions: trichotomy; enteroclysis; induction/conduction of labor; amniotomy; episiotomy or cesarean section. In addition, the medicalization was analyzed according to sociodemographic, obstetric and care variables, using the Chi-square test, considering $p \leq 0.05$. The percentage of women with at least one intervention in labor and delivery was 92.7%. There was an association with primigravida women and previous cesarean history in multigesta women. The trichotomy was associated with cesarean section, and induction/conduction to amniotomy and episiotomy, suggesting the cascade effect. It is concluded high medicalization rates and the association between interventions demonstrate the need for vigilance and humanization of women's health care during labor and delivery.

Keywords: Medicalization. Delivery, Obstetric. Obstetrical Nursing.

INTRODUCTION

Labor and delivery have been the subject of intense medicalization in Brazil[1]. Aspects of the delivery assistance model and the obstetric history of the parturient can influence the health team in the adoption of procedures during labor and delivery, often considered unnecessary[2].

The medicalization of childbirth can be understood as any intervention in labor and delivery, since it is considered a physiological event that, mostly, can occur naturally and spontaneously, which makes a plausible justification for any intervention. The World Health Organization (WHO) clarifies that the main interventions performed by the healthcare team in the parturients, such as trichotomy, enteroclysis, induction or conduction of labor, episiotomy and caesarean section, are harmful and should be abolished or used with restriction[3,4].

There are many efforts in the field of public policies in Brazil to reduce childbirth interventions. The use of trichotomy up to the liberal practice of cesarean surgery is in the scope of attention to women's health at the moment of parturition[1]. The rates of cesarean section are high and with an upward trend in Brazil(5), as well as the harmful actions to women's health and concept are also constant in the assistance provided during vaginal delivery[1,5,6].

In Brazil, the technocratic model is predominant, characterized by the adoption of interventions[1]. It is important to note that many interventions performed in Brazilian health services, not recommended by WHO for the management of labor, should be eliminated[3]. The medicalization of childbirth assistance presupposes the potential risk to fetal and

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woman´s health, the submission situation of the woman, the hospital environment as a scenario of the excessive use of technology and the decision-making power held by health professionals[11] .

Although researches in the area demonstrate similar characteristics for several Brazilian locations, signaling the need for change in the care model, there are many challenges to reach practices that respect the physiological evolution of childbirth. Therefore, it is necessary to investigate which sociodemographic, assistential and obstetric factors influence the practice of care and result in the medicalization of labor and delivery. In this way, this study aimed to verify the prevalence of the medicalization of labor and delivery in the public health network and the factors associated with the adoption of harmful procedures, denominated in this study as the "medicalization of childbirth".

METHODOLOGY

A cross-sectional study carried out with women living in Maringá-PR hospitalized in a joint accommodation, soon after delivery, in the two reference hospitals for labor and delivery of the Unified Health System - SUS.

For the calculation of the sample of 358 puerperal women, the 2,168 births of residents in Maringá were considered, supported by the SUS and occurred in 2011, and the percentage of deliveries in each one of the hospitals that attend the delivery by the SUS plus 10% for possible losses, with a 95% confidence level, a 5% error and a prevalence of 50%. The inclusion criteria were puerperal women with newborns above 500g and who were hospitalized in joint accommodation. In the period of December 2012 and April 2013, the 358 puerperal women, 67 for hospital 1 and 291 for hospital 2, were interviewed during hospitalization after delivery, and the hospital charts and the pregnant woman's card were checked. The interview questions were related to socioeconomic, obstetric and care aspects. From the charts and puerpera´s cards, data on the assistance and on the interventions were collected, complemented with data from the interview. The medical record was analyzed in full, prescriptions, medical and nursing reports, expenses sheet, surgical description, partogram and admission record of the emergency room.

The dependent variable was the medicalization of labor, which, in this study, was considered to be present when at least one of the following labor and/or delivery interventions were performed: trichotomy; enteroclysis; induction/conduction of labor; episiotomy; amniotomy and caesarean section. In addition, the total intervention rate was calculated, according to the number of previous pregnancies and to the type of delivery, calculated by the ratio of the number of interventions and the total number of pregnant women. The independent variables were sociodemographic information of the puerpera, such as age ($\leq$19 or $\geq$20 years), partner (yes or no), race/color (white or nonwhite), schooling (high school: yes or no) (yes or no), income ($\leq$3 minimum salaries or >3 salaries). Obstetric history was analyzed according to: number of previous pregnancies (primigravida or multigesta); gestational age (<37 or $\geq$ 37 weeks) and previous cesarean section for multigesta (yes or no).

The data were analyzed using the Chi-square test and α = 5%, the Odds Ratio (OR) was calculated to measure the magnitude of the association between the variables and its respective confidence interval (95%CI). Data were tabulated using Excel® software and descriptive analysis using Statistica 7 and Epi Info 7 software.

All ethical principles were respected and the study was carried out in accordance with Resolution 466/2012 of the National Commission for Research Ethics - CONEP, the research project was approved on December 12, 2012, under opinion No. 170,704. The objectives of the research were explained to the puerperae and the interruption of the interview was guaranteed at any time. In addition, all those who agreed to participate signed the Informed Consent Term (TCLE).

RESULTS AND DISCUSSION

The prevalence of medicalization was 92.7%, that is, out of the 358 women interviewed 332 had at least one intervention. The primigravida (96%; p = 0.046), women with vaginal delivery (83.1%, p <0.001), and multigesta with previous cesarean section (96.9%; p = 0.004) were the ones that were more likely to suffer some intervention

during labor or delivery. It was also observed that medicalization was present in 54.4% of the women who underwent cesarean section (Table 1).

Table 1. Bivariate analysis of the association between the medicalization of labor and delivery and sociodemographic and obstetric characteristics. Maringá-PR, 2013.

	Medicalization[$]							
	Yes (n=332)		No (n=26)					
	N	%	N	%	Total	OR	IC	*p*-value*
Age								
<20	62	91.2	6	8.8	68	0.765	0.295-1.986	0.582
≥20	270	93.1	20	6.9	290			
High School								
No	190	91.4	18	8.6	208	0.595	0.252-1.406	0.232
Yes	142	94.7	8	5.3	150			
Partner								
No	38	92.7	3	7.3	41	0.990	0.284-3.458	0.989
Yes	294	92.7	23	7.3	317			
Occupation								
No	162	93.1	12	6.9	174	1.112	0.499-2.476	0.795
Yes	170	92.4	14	7.6	184			
Race/color								
Nonwhite	162	92.6	13	7.4	175	0.953	0.429-2.117	0.906
White	170	92.9	13	7.1	183			
Income (minimum wage**)								
≤ 3	230	91.6	21	8.4	251	0.537	0.197-1.464	0.218
> 3	102	95.3	5	4.7	107			
Gestational age								
≥ 37	285	93.4	20	6.6	305	1.819	0.694-4.766	0.217
< 37	47	88.7	6	11.3	53			
No. Of previous gestations								
Primigravida	143	96.0	6	4.0	149	2.522	0.987-6.442	0.046
Multigesta	189	90.4	20	9.6	209			
Type of delivery***								
Cesarean section	111	54.4	93	45.6	204	0.242	0.147-0.401	<0.001
Vaginal	128	83.1	26	16.9	154			
Previous cesarean****								
Yes	93	96.9	3	3.1	96	5.490	1.557-19.355	0.004
No	96	85.0	17	15.0	113			

[$]At least one of the interventions: trichotomy, induction/conduction of delivery, amniotomy, episiotomy and cesarean section, *Chi-square, **Minimum wage in Brazil effective by January 1, 2013: R$ 678.00, ***Values for women who had the following interventions: trichotomy, induction /conduction of delivery, amniotomy and episiotomy (n = 239), ****Only multigesta (n = 209)

Since the vast majority of women had their delivery medicalized, with at least one intervention, the differences in the prevalence of medicalization according to socio-demographic data of race/color, age, marital status, schooling, income or occupation were not observed. This seems to demonstrate that there is a certain democratization of medicalization for delivery to women attended by the SUS and residents of Maringá, that is, medicalization occurs regardless of socioeconomic conditions. Given the high prevalence of medicalization, it is important to analyze the real need or indication of its execution in almost all women. This reality may indicate that the interventionist obstetric model is predominant among the health teams in this municipality, regardless of each woman´s characteristics, personal particularities and labor[7].

Out of the interventions, the most frequent was the cesarean section, 57% of the total number of deliveries, regardless of the number of previous pregnancies, followed by labor induction/conduction (42.2%) and episiotomy

(37. 7%). In addition, there was an association between episiotomy (60.3%, p <0.001) and induction/conduction of labor (55.7%, p <0.001) in primigravida women (Table 2). The enteroclysis was investigatd, but this intervention was not performed at all. Another result of this study was the exposure of primigravida women to a greater number of interventions during labor and delivery, such as cesarean section, induction/conduction and episiotomy (Table 2). Being primiparous and suffering more interventions may be related to labor time in this group, which is usually longer[8].

Table 2. Intervention rates during labor and delivery according to number of previous pregnancies. Maringá-PR, 2013.

	Primigravida (n=149)		Multigesta (n=209)		Total (n=358)			
Intervention*	n	Rate#	n	Rate#	n	Rate#	OR	*p*-value**
Cesarean	86	57.7	118	56.5	204	57.0	1.1	0.813
Induction/conduction	83	55.7	68	32.5	151	42.2	2.6	<0.001
Episiotomy***	38	60.3	20	22.0	58	37.7	5.4	<0.001
Trichotomy	34	22.8	47	22.5	81	22.6	1.0	0.941
Amniotomy	28	18.8	49	23.4	77	21.5	0.8	0.291

*Accepts more than one response, #Calculated in relation to total primigravida, multigesta and overall total, **Chi-square, ***Vaginal delivery only (n = 154, primigravida = 63, multigesta = 91)

Another national study showed a high proportion of cesareans in primigravida and adolescent women. This situation generates concern regarding the reproductive future of these women, considering the possible later deliveries[9], since previous cesarean delivery is one of the main justifications for subsequent cesarean sections[10]. In the present study, half of the multigesters had an earlier cesarean section (n=96) and was associated with medicalization (Table 1).

The American College of Obstetricians and Gynecologists advises the reduction of the number of cesareans in primigravida, that is, to prevent the occurrence of the first cesarean section, which induces the occurrence of other cesareans. A better evaluation of labor and adequate registration in the partogram could reduce the justifications of progression dystocia, which is one of the most frequent intrapartum indications of cesarean section[11].

The WHO admits that only 15% of deliveries should be surgical[12]. However, in this research, a much higher percentage (57.0%) was found, even surpassing the number of vaginal deliveries. The literature shows that the indications for surgical delivery are often inaccurate and may not be scientifically based[10].

The city of Maringá-PR has historically had high rates of cesarean section and with an upward trend[12]. Another study carried out in the same municipality, on the main causes of hospital admissions for maternal disorders, also found a high rate of cesarean section (51.7%), coinciding with high obstetric intercurrence rates (50.0%)[13].

In this study, induction or conduction of labor was present in 42.2% of deliveries and was more frequent in the primigravida (Table 2); this intervention is part of a sequence of procedures associated with amniotomy and episiotomy (Table 5). In other research, this intervention was part of a cascade of interventions, especially for primigravida parturients. The term cascade of interventions refers to the tendency of accumulation of interventions during labor and delivery[14].

The amniotomy was performed in 21.5% of the women, with a higher percentage for the multigesters (Table 2). This result agrees with a study carried out in Germany in 2005, in which it was observed that this intervention was the first choice for these parturients[14]. There is evidence that amniotomy is associated with increased risk of cesarean section[15]. In the study performed in the interior of the State of São Paulo, amniotomy was performed in 75.9% of the women who underwent cesarean section[16]. In the present study, amniotomy was associated with induction/conduction of labor and episiotomy (Table 5).

Episiotomy was a procedure performed in 37.7% of postpartum women, with a 60.3% rate for primigravida (Table 2). These percentages are high when compared to the 10 to 15% range

recommended by WHO[12]. In 2006, the National Demography and Health Survey (PNDS) revealed that in the southern region 78.5% of the women were submitted to episiotomy[5]. However, the rate of episiotomy has decreased in Brazil, since a rate of 53.5% was found in the national survey "Nascer no Brasil", a survey on delivery and birth in 2014[6].

It was verified that 191 women underwent at least two (2) interventions, equivalent to more than half of the sample (53.4%). The primigravida women were submitted to a greater number of interventions and more frequently received 2, 3 and 4 interventions when compared to the multigesters (Table 3). The high proportion of women who underwent at least two interventions and the relationship between them showed a cascade of events, meaning that one procedure probably caused another to be performed and this provoked another, and so on. Studies show that the cascade of interventions occurs and differs according to parturition[14].

Table 3. Number of interventions performed during labor and delivery according to number of previous pregnancies. Maringá-PR, 2013.

	Primigravida		Multigesta		Total	
Intervention	N	%	N	%	N	%
None	6	4.0	20	9.6	26	7.3
1	45	30.2	96	45.9	141	39.4
2	72	48.3	74	35.4	146	40.8
3	24	16.1	18	8.6	42	11.7
4	2	1.3	1	0.5	3	0.8
Total	149	100	209	100	358	100

Table 4 shows the most frequent interventions for each type of delivery and evidence that the induction/conduction of delivery with 62.3% (p <0.001) and amniotomy 43.5% (p <0.001) occurred more frequently for women with vaginal delivery and trichotomy (32.4%) (p <0.001) for women with cesarean delivery.

Table 4. Rates of intervention during labor and delivery according to type of delivery. Maringá-PR, 2013.

	Type of delivery							
	Vaginal (n=154)		Cesarean (n=204)		Total (n=358)			
Intervention*	N	Taxa[#]	N	Taxa[#]	N	Taxa[#]	OR	*p*-valor**
Induction/conduction	96	62.3	55	27.0	151	42.2	4.5	<0.001
Episiotomy	58	37.7	-	-	58	37.7	-	-
Trichotomy	15	9.7	66	32.4	81	22.6	0.2	<0.001
Amniotomy	67	43.5	10	4.9	77	21.5	14.9	<0.001

*Accepts more than one answer, **Chi-square, #Calculated in relatio to total vaginal delivery, cesarean section, and total sample.

The bivariate association of the interventions with each other indicates a probable cascade effect of interventions, since the trichotomy was associated with cesarean section (OR = 4.4; p <0.05); induction/conduction of delivery associated with amniotomy (OR = 3.8; p <0.05) and episiotomy (OR = 3.8; p <0.05) (Table 5).

Table 5. . Matrix of association of interventions. Maringá-PR, 2013.

	Trichotomy	Induction	Amniotomy	Episiotomy	Cesarean
Variables (N)	n (81) (%)	n (151) (%)	n (77) (%)	n (58) (%)	n (204)(%)
Trichotomy	-				
Induction	27 (33.3)	-			
Amniotomy	7 (8.6) [†]	52 (34.4)[§]	-		
Episiotomy	7 (8.6) [†]	40 (26.5)[§]	26 (33.8)[§]	-	-
Cesarean	66 (81.5) [§]	55 (364)[†]	10 (13.0)[†]	-	-

[†] *p*-value <0.05 (OR<1), [§] *p*-value <0.05 (OR>1), *p* corresponding to Chi-square test.

Excessive interventions in labor may also lead to cesarean delivery[17]. The present study, although did not aim to analyze the sequence of procedures, apparently, found that the excess of interventions did not lead to cesarean section, since this was only associated with trichotomy. Still, we can suggest that, for many women, there was no attempt to labor, even the research hospitals belonging to the SUS, a system in which the vaginal route is more frequent than in non-SUS private hospitals[6,12]. Considering the WHO recommendation to reduce interventions in childbirth[3], this study showed that both women with vaginal delivery (83.1%) and those with cesarean section (54.4%) were highly medicalized during labor and delivery.

Only 6.3% of the women had a vaginal delivery without any intervention. This percentage is similar to the national survey "Nascer no Brasil", which found 5.0%[6].

Promoting a physiological delivery, with fewer or no interventions, in a scenario where women are respected, having autonomy and access to coherent information, seems like a practice that depends on the paradigm change of the Brazilian obstetric medical model[2]. For a change in the care model, some measures can be adopted, such as the training of other professionals in the conduction of physiological delivery, obstetrical nurses and shifting of the place of delivery to the home, centers or birth homes[18]. The use of interventions at these places is slender and practitioners use WHO recommendations to provide delivery assistance[19]. Countries that managed to improve medicalization rates were those who invested in obstetrical nurse and midwives as a trained and prepared professional to attend delivery, reinforcing the humanized model[18]. However, in addition to these measures, it is necessary to update and humanize the training of professionals, since it is still based on the biomedical model, which contrasts with the humanized model aimed at less interventionist actions[20].

FINAL CONSIDERATIONS

The prevalence of medicalization observed in this study was very high. When cesarean section was considered as medicalization, more than 90% of puerperal women received at least one intervention during labor and/or delivery, demonstrating that labor does not occur naturally, according to their physiology. The factors associated with medicalization were obstetric characteristics, such as number of previous pregnancies, type of delivery and previous cesarean section.

The study was not designed to verify the chronological order of the interventions performed, but according to the prevalence and concomitance of the interventions, it can be assumed that they are done in a subsequent way, demonstrating a cascade effect, that is, an intervention induces another intervention and so on.

It is recommended for future studies that the actual indications of these procedures and the reasons for the interventions should be analyzed more deeply, because this information is often not included in the medical record or the puerperal women do not know how to answer because they do not know about the reasons for doing so. This fact may be considered a fragility of the study, because sometimes there is a need to perform certain interventions, such as cesarean section and induction/delivery, for example.

Another limitation was the quality of the data in the medical records with missing or incomplete information, requiring a longer period of study and investigation with verification of other sources besides the medical record, for example, the data collection with the puerpera.

Finally, given the evidence of the high medicalization of labor and delivery in women living in Maringá, it is necessary to investigate the institutional, professional and training difficulties of human resources that hinder an effective change in obstetric practice in the municipality. The method of action and work process of health professionals interferes and accelerates labor, a fact that can be determined by the obstetric model and the hospital routine.

PREVALÊNCIA DA MEDICALIZAÇÃO DO TRABALHO DE PARTO E PARTO NA REDE PÚBLICA DE SAÚDE

RESUMO

Objetivo: verificar a prevalência da medicalização do trabalho de parto e parto na rede pública de saúde. **Método:** estudo transversal com 358 puérperas atendidas pelo Sistema Único de Saúde. As entrevistas foram feitas no hospital no período pós-parto e os prontuários e cartão da gestante foram verificados. A medicalização do parto foi considerada presente quando houve pelo menos uma destas intervenções: tricotomia; enteroclisma; indução/condução do parto; amniotomia; episiotomia ou cesariana. Além disso, a medicalização foi analisada segundo variáveis sociodemográficas, obstétricas e assistenciais, por meio do teste Qui-quadrado, considerando p≤ 0,05. **Resultados:** o percentual de mulheres com pelo menos uma intervenção no trabalho de parto e parto foi de 92,7%. Houve associação com mulheres primigestas e histórico de cesariana prévia em mulheres multigestas. A tricotomia esteve associada à cesariana e a indução/condução à amniotomia e episiotomia, sugerindo o efeito cascata. **Conclusão:** as altas taxas de medicalização e a associação entre as intervenções demonstram a necessidade de vigilância e humanização da assistência à saúde da mulher durante o trabalho de parto e parto.

Palavras-chave: Medicalização. Parto obstétrico. Enfermagem Obstétrica.

PREVALENCIA DEL MEDICALIZACIÓN DEL TRABAJO DEL PARTO YPARTO EN LA RED PÚBLICADE SALUD

RESUMEN

Objetivo: verificar la prevalencia de la medicalización del trabajo de parto y parto en la red pública de salud. **Método:** estudio transversal con 358 puérperas atendidas por el Sistema Único de Salud (SUS). Las entrevistas fueron realizadas en el hospital en el período posparto y los registros médicos y la tarjeta de la gestante fueron verificados. La medicalización del parto fue considerada presente cuando hubo por lo menos una de estas intervenciones: tricotomía; enema; inducción/conducción del parto; amniotomía; episiotomía o cesariana. Además, la medicalización fue analizada según variables sociodemográficas, obstétricas y asistenciales, por medio de la prueba ji-cuadrado, considerando p≤ 0,05. **Resultados:** el porcentual de mujeres con por lo menos una intervención en el trabajo de parto y parto fue de 92,7%. Hubo asociación con mujeres primigestas e histórico de cesariana previa en mujeres multíparas. La tricotomía estuvo asociada a la cesariana y la inducción/conducción a la amniotomía y episiotomía, sugiriendo el efecto cascada. **Conclusión:** las altas tasas de medicalización y la asociación entre las intervenciones demuestran la necesidad de vigilancia y humanización de la atención a la salud de la mujer durante el trabajo de parto y parto.

Palabras clave: Medicalización. Parto Obstétrico. Enfermería Obstétrica.

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