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## WATER BIRTH IN A MATERNITY HOSPITAL OF THE SUPPLEMENTARY HEALTH SECTOR IN SANTA CATARINA, BRAZIL: A CROSS-SECTIONAL STUDY

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**ABSTRACT:** The aim of this cross-sectional study was to identify the prevalence of water births in a maternity hospital of Santa Catarina, Brazil, and to investigate the association between sociodemographic and obstetric variables and water birth. The sample consisted of 973 women who had normal births between June 2007 and May 2013. Data was analyzed through descriptive and bivariate statistics, and estimated prevalence and tested associations through the use of the chi-square test; the unadjusted and adjusted odds ratio were calculated. The prevalence of water births was 13.7%. Of the 153 women who had water birth, most were aged between 20 to 34 years old (122), had a companion (112), a college degree (136), were primiparous (101), had a pregnancy without complications (129) and were admitted in active labor (94). There was no association between sociodemographic characteristics and obstetric outcomes in the bivariate and multivariate analyses and in the adjusted model. Only women with private sources for payment had the opportunity to give birth in water.

**DESCRIPTORS:** Natural childbirth. Humanizing delivery. Supplementary health. Evidence-based practice.

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## PARTO NA ÁGUA EM UMA MATERNIDADE DO SETOR SUPLEMENTAR DE SAÚDE DE SANTA CATARINA: ESTUDO TRANSVERSAL

**RESUMO:** Estudo transversal que identificou a prevalência de partos na água em uma maternidade de Santa Catarina e investigou a associação entre variáveis sociodemográficas e obstétricas e a escolha por essa modalidade de parto. Amostra de 973 mulheres que tiveram parto normal entre junho de 2007 a maio de 2013. Dados analisados por estatística descritiva e bivariada, estimadas prevalências e testadas associações por meio do teste qui-quadrado e calculado *odds ratio* bruto e ajustado. A prevalência dos partos na água foi de 13,7%. Das 153 mulheres que pariram na água, a maioria tinha de 20 a 34 anos (122), possuía companheiro (112), ensino superior (136), era primípara (101), sem intercorrências na gestação (129), internada na fase ativa do trabalho de parto (94). Não houve associação entre as características sociodemográficas e obstétricas com o desfecho, na análise bivariada, multivariada e no modelo ajustado. Mulheres com fonte de pagamento privado tiveram a oportunidade de parir na água.

**DESCRIPTORIOS:** Parto normal. Parto humanizado. Saúde suplementar. Prática clínica baseada em evidências.

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## PARTO EN EL AGUA EN UNA MATERNIDAD DE SECTOR COMPLEMENTARIA DE SALUD DE SANTA CATARINA: UN ESTUDIO TRANSVERSAL

**RESUMEN:** Estudio transversal que identificó la prevalencia de partos en el agua en una maternidad de Santa Catarina, Brazil y investigó la asociación entre las variables sociodemográficas y obstétricas y la elección de esa modalidad de parto. La muestra fue compuesta por 973 mujeres que tuvieron su parto normal entre junio/2007 a mayo/2013. Los datos fueron analizados por medio de estadística descriptiva y bivariado, se estimaron prevalencias y se testaron asociaciones por chi cuadro, se calculó *odds ratio* bruto y ajustado. La prevalencia de partos en el agua fue 13,7%. De las 153 mujeres que tuvieron su parto en el agua, la mayoría tenía de 20 a 34 años (122), tenían parejas (112), educación superior (136), primípara (101), sin complicaciones en la gestación (129), internada en la fase activa del parto (94). No hubo asociación entre las características sociodemográficas y obstétricas con el resultado en el análisis bivariado, modelo multivariado y ajustado. Las mujeres con forma de pago privado tuvieron la oportunidad de dar a luz en el agua.

**DESCRIPTORIOS:** Parto normal. Parto humanizado. Salud suplementar. Prática clínica basada en la evidencia.

## INTRODUCTION

The use of water during labor and birth is not new; there are records and legends of its use in many civilizations.<sup>1</sup> Although the documentation of the first water birth is recorded in 1803, in France,<sup>2</sup> this modality of birth came to be used more only after the 1980s, when Michel Odent introduced a birthing pool in a maternity hospital.<sup>1</sup>

There are numerous international studies on water birth, which present the maternal and neonatal results<sup>3-5</sup> of the attendance in maternity hospitals,<sup>6</sup> in birth centers (BC)<sup>7</sup> and in the home, with the majority of the water births being attended by midwives.<sup>6</sup> In Australia, women can choose to give birth in water in these three places, both in the public and private sectors. In the private sector, however, they are attended only by a doctor.<sup>8</sup>

The benefits of water birth include: an increase in maternal satisfaction with the experience of birth; the woman's greater mobility; reduction in the perception of pain; more efficient uterine contractions, which accelerates cervical dilatation; reduction in the use of analgesia, of interventions in the labor, of cesareans, of perineal trauma and of traumatic experiences of birth.<sup>9</sup>

The systematic review published in the Cochrane library both evaluated and indicated various benefits relating to immersion in water during labor and birth; however, it raised little information regarding the birth and suggested further studies. There is a reduction in pain in the expulsive period and there is no increase in the rate of operative vaginal births or cesareans, of the Apgar score at the 5th minute < 7, of the admitting of the newborn (NB) to a Neonatal Intensive Care Unit (NICU), or in neonatal infection.<sup>4</sup>

In the Brazilian context, it is not known for certain which health institutions offer women the possibility to give birth in water, it being the case that no birthing pool is installed in the majority of obstetric centers,<sup>10</sup> what the number of births is in this modality of care, or what the maternal and neonatal results are. The publications on the issue present the frequency of water births in some alongside birth center in which the percentage is between 10 and 15.3%,<sup>11-13</sup> and in the home, where it reaches 72.0%.<sup>14</sup>

In 2004, the National Supplementary Health Agency (ANS) began to encourage normal birth, and in 2008 published the "Normal Birth is in my Plan" project, aiming to inform the population about the risks related to unnecessary cesarean births and the benefits of normal birth. It does not, however, refer to water birth care.<sup>15</sup>

In the public health sector, although there is no clear encouragement to provide assistance with water births, there is the incentive, through the Stork Network (*Rede Cegonha*), for the implantation of BC in the various regions of Brazil. The ministerial ordinance which regulates this place of care stipulates the installation of a birthing pool, which can be used for assisting the water birth.<sup>16</sup>

Considering the benefits of giving birth in water, and the shortage of investigations on this practice in the Brazilian context, it is necessary to obtain indicators for this modality of care, given that all healthy women, with full-term pregnancies, should have the option of giving birth in water,<sup>17</sup> after receiving information on its risks and benefits. Hence, this study aimed to identify the prevalence of water births in a maternity hospital in the Brazilian state of Santa Catarina and to investigate the association between sociodemographic and obstetric variables and the choice of this type of birth.

## METHOD

This is a cross-sectional study, with retrospective data collection, undertaken in a maternity hospital of the Supplementary Health Sector of Florianópolis, Santa Catarina (SC).

The maternity hospital began offering water birth care in 2007. To this end, it has one room with a birthing pool, in which the parturient woman remains from her admission through to the immediate postpartum period. It should be highlighted that the maternity hospital attends women through private payment and also by health insurance, and that attendance may be undertaken by obstetricians who are not on-duty physicians. As a result, the presence of a companion and/or doula, the use of oxytocin, of nonpharmacological methods for pain relief, and encouragement to walk around depend on the practice adopted by the doctor chosen by the parturient woman to treat her.

This maternity hospital was chosen because it is the only institution offering water births in Florianópolis-SC.

In order to describe the prevalence of water births in relation to the number of births, the sample was made up of all of the women who had a normal birth (871), in 2008 - 2012, as this made analysis by complete year possible. However, for the other analyses, women were included who had normal birth, with NBs born at full term, cephalic presentation and single pregnancy, attended between June 2007 and May 2013, totaling 973 women. This period was defined with the aim of analyzing all the

women who had had the possibility of giving birth in water, from the inauguration of the maternity hospital through to the termination of data collection. It should be emphasized that in order to detect a frequency of 15.30% of water births, considering that indicated for the sample size calculation undertaken using the OpenEpi software, version 3, by population size for a finite population correction factor, confidence limit of 2.5% (in order to increase the possibility of ascertaining small differences), design effect 1.0, with a confidence level at 95%, a sample of 796 women would be necessary.<sup>11</sup>

Data collection was undertaken between January and July 2013, by the researcher and by two scientific initiation grant-funded scholars, who were trained and supervised. The data were extracted manually from each printed medical record which was available in the institution's archive department and in the birth register, through a questionnaire developed specifically for the data collection.

The variables classified as predictors from sociodemographics were: age range (13-19 years old; 20-34 years old; 35 years old and over), race (white; black/mixed-race/Asian), marital status (with/without partner), educational level (junior high school; senior high school and higher education), paid employment (yes/no), a medical professional who attended the birth (prenatal care professional; on-duty physician), and financing of the birth (health insurance; without health insurance/private). There were also the obstetric variables on admission: parity (primiparous; multiparous), gestational age (37-40 weeks; 40.1-42.2 weeks), prenatal consultations (<6 consultations; 6-8 consultations; 9-11 consultations; >11 consultations), complications during the pregnancy (Pregnancy-Induced Hypertension (PIH); Systemic Arterial Hypertension (SAH); Urinary Tract Infection (UTI)/Pyelonephritis; Hypothyroidism; Diabetes mellitus (DM)/ Gestational Diabetes Mellitus (GDM), fetal heartbeat (FHB) on admission (without/with alteration), uterine contraction (present/absent), phase of labor (latent - up to 3 cm dilated; active - above 3 cm and expulsion of the fetus), conditions of the membranes (whole; broken), color of the amniotic fluid (clear; meconium-stained). The variable of outcome was in the place of birth: in the water or out of it.

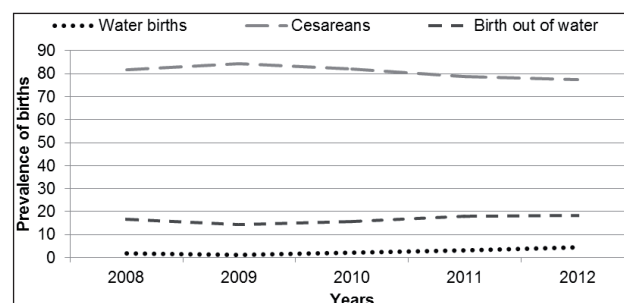
The database was constructed using the EpiInfo 7 program (7.1.0.6) - version 2012, with the data being entered by the main researcher, with later revision and correction. The Stata SE 9.0 software was used for the statistical analysis. Bivariate and multiple descriptive statistics were undertaken. In the descrip-

tive analysis, measurements of central tendency and dispersion were used for continuous variables, while the absolute and relative frequencies were used for the categorical variables. In the bivariate analysis, the prevalences were calculated and the association was tested between the variables and the water births, through the use of the chi-square test to ascertain the difference between the proportions. Logistic regression was used to calculate the raw and adjusted odds ratio (OR) and the respective confidence intervals at 95%. The adjusted analysis was undertaken by blocks of variables which presented values of  $p < 0.20$ . In the first block, the sociodemographic variables were included; and in the second, the obstetric characteristics on admission. The adjustment was undertaken by parity and age range. The variables which presented a value of  $p < 0.05$  remained in the adjusted model of the first block, which adjusted the second block.

This research was approved by the Ethics Committee of the *Universidade Federal de Santa Catarina*, under number 207,310, of 02/18/2013. For authorization to use the data of the women who were in the sample and their NBs, an active search was undertaken via telephone contact, in order to obtain signing of the Terms of Free and Informed Consent, which were later sent by email.

## RESULTS

In the period between 2008 and 2012, there were 4,463 births, of which 871 (19.5%) were vaginal and 3,592 (80.5%) were cesareans. It may be observed that the rate of cesareans is fairly high in relation to vaginal births, reaching 84.3% in 2009. One can observe, however, a reduction in cesareans from 2010 onward, reaching 77.4% in 2012 (Figure 1). The prevalence of vaginal births in water was 13.7%, and out of water was 86.3%. From 2010 onward, the prevalence of birth in water increased, reaching its highest percentage in 2012 (19.0%) (Table 1).



**Figure 1 - Distribution of the prevalence of normal birth in water, out of water, and cesareans in a maternity hospital of the Supplementary Health Sector in Florianópolis-SC, 2008-2012. (n=4,463)**

**Table 1 – Distribution of the prevalence of births in water and out of water in a maternity hospital of the Supplementary Health Sector in Florianópolis-SC, 2008–2012. (n=871)**

Place of birth	Years					Total n (%)
	2008 n (%)	2009 n (%)	2010 n (%)	2011 n (%)	2012 n (%)	
In water	12 (9.2)	10 (8.1)	19 (12.3)	30 (14.4)	48 (19.0)	119(13.7)
Out of water	119(90.8)	114(91.9)	135(87.7)	179(85.6)	205 (81.0)	752(86.3)

Table 2 presents the sociodemographic characteristics of the women who had a normal birth in water and out of water (973). The majority were in the age range between 20 and 34 years old (81.2%); were white (93.1%); had a partner (69.6%) had completed higher education (86.9%); undertook paid work (87.1%); were assisted by the institution's on-duty physician (78.3%) and the birth was financed by

health insurance (86.2%). In comparing these characteristics between the two groups (birth in water and out of water), the women who undertook paid work were nearly twice as likely to give birth in water (OR 1.89; CI95% 1.01;3.53). However, in the adjusted model, none of the variables analyzed (paid work, the birth being attended by a medical professional, and financing of the birth) continued to be associated.

**Table 2 – Association between the sociodemographic characteristics of the women and birth in water and out of water in a maternity hospital of the Supplementary Health Sector in Florianópolis-SC, 2013. (n=973)**

	Place where birth occurred			OR (CI95%)	ORadj (CI95%)
	Total n(%)	In water n(%)	Out of water n(%)		
Age range (n=964)*					
13-19 years	13(1.4)	1(7.7)	12(92.3)	0.45(0.05;3.50)	
20-34 years	783(81.2)	122(15.6)	661(84.4)	(Ref.)	
35 years or over	168(17.4)	29(17.3)	139(82.7)	1.13(0.72;1.76)	
Skin color (n=973)*					
White	906(93.1)	141(15.6)	765(84.4)	(Ref.)	
Black/mixed/Asian	67(6.9)	12(17.9)	55(82.1)	1.18(0.61;2.26)	
Marital status (n=967)*					
With partner	673(69.6)	112(16.6)	561(83.4)	(Ref.)	
Without partner	294(30.4)	40(13.6)	254(86.4)	0.78(0.53;1.16)	
Education (n=972)*					
Junior high school	13(1.4)	1(7.7)	12(92.3)	(Ref.)	
Senior high school	114(11.7)	16(14.0)	98(86.0)	1.95(0.23;16.11)	
Higher education	845(86.9)	136(16.1)	709(83.9)	2.30(0.29;17.84)	
Paid employment (n=973)*					
No	126(12.9)	12(9.5)	114(90.5)	(Ref.)	(Ref.)
Yes	847(87.1)	141(16.6)	706(83.4)	<b>1.89(1.01;3.53)</b>	2.25(0.83;6.08)
Doctor who attended the birth (n=554)*					
Prenatal care professional	120(21.7)	17(14.2)	103(85.8)	(Ref.)	(Ref.)
On-duty physician	434(78.3)	89(20.5)	345(79.5)	1.56(0.88;2.74)	1.49(0.82;2.70)
Financing of the birth (n=973)*					
Without health insurance/private	135(13.8)	15(11.2)	120(88.8)	(Ref.)	(Ref.)
Health insurance	838(86.2)	138(16.5)	700(83.5)	1.57(0.89;2.78)	1.06(0.52;2.15)

\*Adjusted by: parity; age range.

In observing the obstetric characteristics, it may be noted that the groups are very similar (Table 3). The majority of the women were primiparous

(69.2%); 101 gave birth in water, and 572 out of water; they presented a gestational age between 37 weeks and 40 weeks (69.5%); attended from six



to eighth prenatal consultations (43.8%); and did not present complications during the pregnancy (87.5%). On admission, FHB was presented without alteration (91.6%), the patient was in the active phase of labor (57.6%), presenting, therefore, uterine ac-

tion (91.7%). The amniotic sac was whole (63.8%), and, when the waters broke, the majority presented clear amniotic fluid (95.6%). In the bivariate and multivariate analysis, none of the variables was associated with the outcome.

**Table 3 - Association between the women's obstetric characteristics on admission and the birth in water and out of water in a maternity hospital of the Supplementary Health Sector in Florianópolis-SC, 2013. (n=973)**

	Place where birth occurred			OR (CI95%)	ORadj (CI95%)
	Total n(%)	In water n(%)	Out of water n(%)		
Parity (n=973)*					
Primiparous	673(69.2)	101(15.0)	572(85.0)	(Ref.)	
Multiparous	300(30.8)	52(17.3)	248(82.7)	1.18(0.82;1.71)	
Gestational age (n=941)*					
37.00 - 40.00	654(69.5)	103 (15.7)	551(84.3)	(Ref.)	
40.01 - 42.02	287(30.5)	47 (16.4)	240(83.6)	1.04(0.71;1.52)	
Prenatal consultations (n=903)*					
< 6 consultations	71(7.9)	10(14.1)	61(85.9)	(Ref.)	
6-8 consultations	396(43.8)	62 (15.7)	334(84.3)	1.13(0.55;2.32)	
9-11 consultations	375(41.5)	67(17.9)	308(82.1)	1.32(0.64;2.72)	
>11 consultations	61(6.8)	8(13.1)	53(86.9)	0.92(0.33;2.50)	
Complications in the pregnancy (n=973)*					
Without complications	851(87.5)	129(15.2)	722(84.8)	(Ref.)	
PIH†/SAH‡	15(1.5)	4(26.7)	11(73.3)	2.03(0.63;6.48)	
UTI	10(1.0)	2(20.0)	8(80.0)	1.59(0.63;4.03)	
Hypothyroidism	26(2.7)	2(7.7)	24(92.3)	0.46(0.10;1.99)	
DM/GDM	27(2.8)	6(22.2)	21(77.8)	1.39(0.29;6.66)	
Others	44(4.5)	10(22.7)	34(77.3)	1.64(0.79;3.41)	
FHB§ (n=926)*					
Without alteration	848(91.6)	135(15.9)	713(84.1)	(Ref.)	
With alteration	78(8.4)	12(15.4)	66(84.6)	0.96(0.50;1.82)	
Uterine action (n=915)*					
Present	839(91.7)	136(16.2)	703(83.8)	(Ref.)	
Absent	76(8.3)	11(14.5)	65(85.5)	0.87(0.44;1.70)	
Phase of labor (n=936)*					
Latent	382(40.8)	50(13.1)	332(86.9)	(Ref.)	(Ref.)
Active	539(57.6)	94(17.4)	445(82.6)	1.40(0.96;2.03)	0.91(0.41;2.03)
Expulsive phase	15(1.6)	2(13.3)	13(86.7)	1.02(0.22;4.66)	2.73(0.20;36.41)
Conditions of membranes (n=928)*					
Whole	592(63.8)	86(14.5)	506(85.5)	(Ref.)	
Broken	336(36.2)	61 (18.1)	275(81.9)	1.30(0.91;1.86)	
Amniotic fluid (n=271)*					
Clear	259 (95.6)	43(16.6)	216(83.4)	(Ref.)	(Ref.)
Meconium	12(4.4)	2(16.7)	10(83.3)	1.00(0.21;4.74)	0.35(0.03;3.21)

\* Adjusted by: parity, age range; †PIH: Pregnancy-Induced Hypertension; ‡SAH: Systemic Arterial Hypertension; UTI: Urinary Tract Infection; DM: Diabetes mellitus; GDM: Gestational Diabetes Mellitus; §FHB: Fetal Heartbeat.

## DISCUSSION

Scientific publications show that water birth has been studied for more than 30 years; however, it was only in 2007 that this modality of care came

to be offered in an institution in Florianópolis-SC. In 2012, this reached approximately 20% of normal births, a percentage which had risen since 2010. From that year onward, rates of water births in the

maternity hospital studied have been above those in some BCs in Brazil, which also made this mode of birth available, being around 10% and 15.3%.<sup>11-13</sup>

In international studies, the prevalence of water birth is of up to 13%,<sup>18-19</sup> although a study undertaken in England, Scotland and Northern Ireland, in 2012, presents a prevalence well above the others, reaching 55.7%.<sup>20</sup> It is worth emphasizing that the majority of results published on water birth derive from studies undertaken mainly in Western countries, such as the United Kingdom, Germany, Switzerland and Austria, where this modality of care is more frequent.<sup>18</sup>

Parturient women in the United Kingdom have broad access to water birth in health institutions. In 2007, approximately 95% of maternity units already had a birthing pool. Furthermore, this type of care is also made available in the home.<sup>20</sup> This context is similar to that of Australia, where parturient women may be assisted in water in maternity units, BC, or in the home.<sup>8</sup> In Florianópolis-SC, only the health institution studied, which belongs to the Supplementary Health Sector, provides this type of care, that is, only the women with health insurance or with their own financial resources have the possibility of giving birth in water. One can infer that there is a social inequality in access to water births. The Unified Health System (SUS), establishes, among its principles and guidelines, the "equality of healthcare, without prejudice or privilege of any kind".<sup>21:18056</sup> In this case, it may be observed that this principle is not being respected or complied with, as the women assisted in the SUS do not have the option of giving birth in water.

The rate of cesareans in the institution studied is high, reaching 82% of births in 2010, a percentage which is in line with the Brazilian context of the Supplementary Health System; it is, however, above the national average which, in the same year, was 52%.<sup>22</sup> The way of giving birth in Brazil is increasingly diverging from the recommendations of the World Health Organization, given that the rate of cesareans should not exceed 15%.<sup>23</sup>

One cross-sectional study undertaken in the State of São Paulo, with 156 middle-class pregnant women assisted in a private clinic indicated that 43.0% of them had already opted for a cesarean during the prenatal consultations.<sup>24</sup> Another study, on the other hand, which also addressed women's preference in relation to mode of birth, presents a discordance between what the doctors stated the women's wish to be, and what the women themselves desired. Of the women who had experienced both routes of giving birth, 90% wished to have a normal birth.<sup>25</sup>

The fact that water birth was not available for women in the public sector of Florianópolis-SC reflects negatively on the training and updating of the health professionals, as these lose the opportunity to experience this type of care in the maternity hospitals used as placement areas during undergraduate training and in the medical and nursing residencies, and hindering the extending of this practice. It is essential that the professionals who attend the water birth should be trained and have experience in this modality, so that they may know how to manage complications, should these happen.<sup>3</sup>

In relation to the sociodemographic characteristics of the women studied, who had normal births in water and out of water, it is observed that these are women with a high educational level, who have their own income, and who have access to the prenatal consultations. This was anticipated, as it is a maternity hospital of the Supplementary Health Sector, in which the service users can make use of health insurance in order to have access to care for water births, including with the on-duty physician.

The profile of the women who opted to give birth in water is similar to that presented in studies undertaken in other countries, in which the majority of the women were of a reproductive age, between 21 and 34 years old,<sup>18, 26-28</sup> white<sup>28</sup> and had a partner.<sup>29</sup> However, upon comparing these with the characteristics of women who gave birth in Florianópolis-SC in 2011, the majority of whom did not have a partner, had studied from 8 to 11 years, and 20% of whom were adolescents, according to data from the Live Births Information System,<sup>30</sup> it is obvious that the women who have access to, and opt for, water birth belong to a differentiated group.

In one study undertaken in the State of Rio de Janeiro, the socioeconomic, demographic and reproductive characteristics of puerperas assisted in two institutions of the Supplementary Health Sector, regardless of route of birth, indicated that the majority of women were primiparous, between 20 and 34 years old, with senior high school complete and incomplete, with a partner, of black or mixed race, and had a paid occupation.<sup>31</sup> In comparing this context with the present study, it may be observed that the women's skin color and educational level differ, which is probably related to the region of Brazil where the studies were undertaken.

In the present study, the obstetric characteristics of the women who gave birth in water and out of water were similar, a result which may have resulted from the absence of a protocol indicating inclusion and exclusion criteria for the women to be

assisted in the water. In the multivariate analysis, none of the obstetric variables presented an association with the outcome, that is, they were not predictors for the woman to give birth in water or out of it. As a result, one can infer that this modality of birth could be available for the women, regardless of parity and age range. Attention is drawn to the fact that most of the women are of the recommended reproductive age, low-risk pregnancy, experiencing their first birth, and being admitted to the institution in the active phase of labor. It is obvious that these are women with access to the health service, as the majority of them undertook seven or more prenatal consultations, a number above that recommended by the Ministry of Health.<sup>32</sup>

Regarding parity, it was observed that the primiparous women are those who give birth in water most, although without a statistically significant difference when compared with the multiparous. This result is similar to that of a study undertaken in Switzerland.<sup>19</sup> However, it diverges from various studies on this issue,<sup>5,26-27</sup> in which the majority of the women who gave birth in water were multiparous. The wish of multiparous women to give birth in water may be motivated by negative experiences of previous births.<sup>18</sup> The women, when they choose to give birth in water, seek a way of relaxing, of having comfort, and of avoiding unwanted interventions, that is, they believe this to be a more natural form of birth.<sup>33</sup>

It should be emphasized that the majority of women studied had no disease during the pregnancy. However, for the minority which had diabetes, hypertension, urinary infection or a preterm gestational age, these did not make it impossible to give birth in water. One must take into consideration that in the institution there is no protocol for assisting with water birth, which may have contributed to these pregnant women not having been excluded from this modality. Various international protocols describe the practice of giving birth in water, raising the indications and contraindications.<sup>17,34</sup> It may be observed that, among the women who were indicated for water birth, one finds those low-risk pregnancy, without intrapartum risk factors<sup>16,34</sup> and with fetuses at full term.<sup>35-36</sup>

In one study which analyzed 3,617 water births, only 32 women had risk factors in the birth process, including preeclampsia and pregnancy-induced hypertension. Some authors argue that the woman should be able to choose where she wishes to give birth, regardless of whether she presents any risk factor.<sup>36</sup> However, it must be ensured that these women have strict control of the intrapartum fetal cardiac fre-

quency and must be advised that, should any change be identified, the water birth will be impossible.<sup>37</sup>

In the maternity hospital studied, the majority of the women were admitted with uterine activity and in the active phase of labor, these being ideal conditions for admission, as the scientific evidence demonstrates that early admission to the maternity unit is associated with greater duration of labor and the increased use of oxytocin and analgesia.<sup>38</sup> A study undertaken with 8,818 women in the United States, which compared the maternal and neonatal results of women admitted in the latent phase of labor with those admitted in the active phase demonstrated an association between early admission and the use of oxytocin, analgesia and the intubation of neonates.<sup>39</sup>

The presence of meconium-stained liquor at the time of admission also did not impede the parturient woman from being assisted in the water; however, this conduct differs from other countries. One Australian protocol contraindicates water birth in the presence of meconium-stained amniotic fluid.<sup>35</sup> Another protocol from the same country mentions that, in the presence of moderate to thick meconium, water birth must be interrupted.<sup>34</sup> Some authors do not contraindicate water birth under these conditions, but recommend that in the presence of some alteration in the amniotic fluid, labor in the water requires cautious monitoring, with frequent fetal cardiac monitoring, it possibly being necessary to give birth out of water.<sup>37</sup>

This study's limitations are related to the retrospective collection of data, as some variables studied were not recorded in all the medical records, and neither was there a standard for the description of the care practices. Besides this, there was no information as to whether the birth had taken place in water, either in the birth records or in the service's statistics, it being necessary to undertake the search for this information in all the institution's medical records. Due to this lack of appropriate records, the study is susceptible to data collection bias, it being the case that some medical records may not have been located, and, therefore, not included in the study. It is also necessary to highlight that, as the study was undertaken in only one hospital institution, and with a small sample, there are restrictions for the generalization of the findings. Furthermore, as this is a service in which cesareans are undertaken massively, the women who opted for birth in water are probably those who were motivated towards normal birth, who had information on this modality of birth, and who were supported by the partner. In spite of all these limitations, it is considered that this study



can contribute to extending knowledge regarding water birth, in the Brazilian care context, which is currently passing through transformations with a view to restoring normal birth as the standard.

## CONCLUSIONS

In the maternity hospital studied, which belongs to the Supplementary Health Sector, water birth has gradually been increasing since 2010, reaching its highest percentage in 2012. However, the prevalence of water birth remains at approximately only 15% of the normal births.

The majority of the women who seek water birth are white, have a partner, a high educational level, paid employment and a large number of prenatal consultations. At the time of admission, they are in active labor and will experience their first birth, under the assistance of the on-duty physician. The women's sociodemographic and obstetric characteristics are not associated with birth in water or out of water.

As this is an institution of the Supplementary Health Sector, only women who have health insurance or present the conditions to pay for their care have access to this form of birth.

There are many gaps present in the scientific evidence regarding care for water births. As a result, the undertaking of further studies, in Brazil, with more robust designs, is necessary. It is considered that the maternal and neonatal results of this modality of birth must be broadly studied, and that this practice could be adopted in the public maternity hospitals, given that women have the right to decide where and how they wish to give birth, regardless of their social condition, age, educational level or skin color.

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