The pain and behavior of women during labor and the different positions for childbirth*

DOR E COMPORTAMENTO DE MULHERES DURANTE O TRABALHO DE PARTO E PARTO EM DIFERENTES POSIÇÕES

DOLOR Y COMPORTAMIENTO DE MUJERES DURANTE TRABAJO DE PARTO Y PARTO EN DIFERENTES POSICIONES

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RESUMO

Avaliou-se a intensidade da sensação dolorosa e o comportamento, durante o trabalho de parto e parto, entre mulheres que tiveram parto normal, sem analgesia, nas posições semi-sentada, decúbito lateral esquerdo e litotomia. O estudo foi descritivo, transversal e correlacional. Foram usados um questionário validado que avalia dor e comportamento durante o trabalho de parto e parto, segundo a perspectiva da mulher, e duas escalas de dor: uma analógica e outra alfanumérica. Observou-se que a dor entre as mulheres que pariram em litotomia foi significativamente menor em comparação com decúbito lateral esquerdo (p=0,003), embora a posição tenha sido escolhida pela mulher. Houve associação entre dor e comportamento. A dor no trabalho de parto e parto estavam associadas entre si, assim como o comportamento nesses dois momentos. Os resultados indicam uma associação entre posição no parto e sensação dolorosa, mas não foi possível identificar fatores explicativos, sendo necessário desenvolver estudos longitudinais.

DESCRITORES

Parto
Dor do parto
Medição da dor
Trabalho de parto
Parto normal
Comportamento

ABSTRACT

This study evaluated the pain intensity and behavior during labor and delivery, among women who had natural childbirth, without analgesia, in one of the following positions: semi-sitting, lying on the left side, and lithotomy. This is a descriptive, cross-sectional and correlational study. The instruments used were a validated questionnaire that evaluates pain and behavior during labor and childbirth, from the women's perspective, and two pain scales: one analog and one alphanumerical. It was observed that the pain among women who had childbirth in a lithotomy position was significantly smaller compared to those lying on the left side (p=0.003), though women chose the positions. There was an association between pain and behavior. Pain in labor and childbirth were associated among each other, as was the behavior in these two moments. The results point at an association between the position at childbirth and pain, but it was not possible to identify factors to explain this association; therefore, there is a need for longitudinal studies.

DESCRIPTORS

Parturiation
Labor pain
Pain measurement
Labor, obstetric
Natural childbirth
Behavior

RESUMEN

Se evaluó intensidad de sensación dolorosa y comportamiento durante trabajo de parto y parto entre mujeres con parto normal, sin analgesia, en posiciones: semi-sentada, decúbito lateral izquierdo y litotomía. Estudio descriptivo, transversal, correlacional. Fueron usados un cuestionario validado que evalúa dolor y comportamiento durante trabajo de parto y parto según la perspectiva de la mujer, y dos escalas de dolor: una analógica y otra alfanumérica. Se observó que el dolor entre las mujeres que parieron por litotomía fue significativamente menor en comparación con decúbito lateral izquierdo (p=0,003), a pesar de ser la mujer quien eligió tal posición. Hubo asociación entre dolor y comportamiento. Los dolores en trabajo de parto y parto tuvieron mutua asociación, así como el comportamiento en tales momentos. Los resultados indican asociación entre posición de parto y sensación dolorosa, pero no fue posible identificar factores explicativos, determinándose necesidad de desarrollar estudios longitudinales.

DESCRIPTORES

Parto
Dolor del parto
Dimensión del dolor
Trabajo de parto
Parto normal
Conducta

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INTRODUCTION

Over the last years, there has been a great progress in understanding the underlying mechanisms of pain and its treatment. In labor, during the dilation phase, visceral pain prevails, and the painful stimulus (nociceptive) originates from the dilation mechanism of the lower uterine segment and cervix dilation. In the expulsive stage, pain has a somatic feature because of the distention and traction of the pelvic structures surrounding the vaginal cupula and the distention of the pelvic floor and perineum[1].

Women in labor experience pain of variable intensity, which is affected by psychic (behavioral), mood (motivation), cultural (education), and organic (genetic constitution) factors as well as by the possible changes in normality (stress) and other factors that may affect pain such as dystocia, which can increase it, and an endorphin release, which can reduce it[2].

Because it is a phenomenon subject to many influences, pain is considered to be a subjective and personal experience that should be measured to permit making an effective choice of a relief method[3]. Pain can be evaluated using laboratory examinations, by observing pain-related behavior, and by oral and/or written descriptions of pain. There are several methods to measure the perception and sensation of pain, and one- and multi-dimensional instruments can be used for that purpose[4].

The behavior of women in labor is not always a good parameter to evaluate pain, considering that the women usually try to control their emotions so the health team does not consider them as being out of control and hysterical. In fact, a study performed at a public maternity hospital in Florianopolis found that women are very concerned about keeping their emotions under control, and they try to express their pain within parameters considered appropriate, i.e., not to scream, and appear desperate[5].

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It appears that the position during labor is another factor that may affect the sensation of pain. A study with 20 clinical trials about the positions in the second stage of labor confirmed that when women assume a vertical or side position, there is a reduction in the intensity of pain during the expulsive stage, compared to the supine or lithotomy positions[6]. Deliveries that are performed in the many vertical positions had a shorter expulsive stage compared to deliveries in lithotomy. A shorter expulsive stage, and the reduced rates of assisted labor and episiotomy confirm the concept that pushing in the expulsive stage is more efficient in vertical positions[6].

Women realized that, because of gravity, the vertical position makes it easier for them to push, and for the fetus to descend and be expelled[7]. A qualitative clinical study with 10 puerperal women showed that the positive aspects of the vertical position reflect the need for women to participate more actively in the delivery, in addition to the perception that this position is the most comfortable and helps to expulse the fetus. The horizontal position, on the other hand, makes those aspects more difficult, generating a negative perception about it, as it makes moving more difficult, increases the suffering, tiredness and prologs the expulsive stage and increases the number of obstetrical interventions[8].

To deliver in a semi-sitting position (SS), women sit on a seat specific for delivery, with the back rest tilted at 30° and legs spread apart and flexed. This position is considered to be vertical because of the tilted back rest. It s known that in the vertical position uterine contractions are more frequent and more intense, which allows labor to be more effective and less wearing on the women[9].

It was observed, however, in a randomized study[10] with 133 women who delivered in a sitting position and 138 in a kneeling kneeling position, that women in the sitting sitting group reported feeling more intense pain; a frequent perception of long expulsive stage, though there was no significant difference; less comfort; greater vulnerability and exposure compared to the group of women in the kneeling position. Delivery in the sitting position was associated with a higher degree of perianal pain postpartum and a perception of a more difficult delivery. The kneeling position was usually associated with the mothers reporting having a good experience in terms of pain and comfort during delivery.

A randomized controlled study compared deliveries in the SS position (77 women) and lying on the left side (LLS) (81 women), and found that women in the LLS position used less oxytocin and there were fewer cases of episiotomy; blood loss was smaller in these women; there were fewer cases of perineal trauma and higher hemoglobin values of women discharged with an intact perineum[9]. In line with these findings, a systematic analysis with 6,135 women found that blood loss was greater than 500ml among women who delivered in a vertical position either sitting on a chair or squatting[6]. Hence, that could be a disadvantage of the vertical position.

In view of this information, the following questions emerged: Does pain during labor differ from that perceived during the delivery (expulsive period)? Is there any correlation between the women's behavior (which is more easily observed by the nursing team and physicians assisting the women) and the sensation of pain? Is there any association between the clinical periods of the delivery and the sensation of pain and behavior? Does the position during labor change the sensation of pain?

To answer these questions, the purpose of this study was to study the pain and behavior of women assisted at a public maternity hospital in the greater-São Paulo region, who had natural childbirth, without using oxytocin or analgesia, in one of the following positions: SS, LLS, and lithotomy.

OBJECTIVES

• To describe the intensity of pain and behavior of women during labor (first stage) and delivery (second stage) in the following positions semi-seated, lying on the left side, and lithotomy, as per the women's perception;

• To verify is there is any association between the intensity of pain and behavior during labor and delivery;

• To compare theverify if there is any association between the sensation of pain and behavior referred by the women considering the two moments: labor and delivery;

• To verify if the women's position during delivery (second stage) has any effect on the intensity of the sensation of pain and on behavior.

METHODS

This is a descriptive, cross-sectional and correlations study, conducted from August 2008 to January 2009, in the Rooming-in facility of a public maternity hospital in Itapecerica da Serra, São Paulo. The referred hospital follows a protocol of permitting the women to choose the position for childbirth.

Participants were women (18 years of age or older) who had natural childbirth, without using synthetic oxytocin or any drugs for pain relief, and who chose the SS, LLS or lithotomy positions for childbirth. The exclusion criteria were women who were not able to fill out the data collection instruments because they were illiterate or unable to understand the forms.

The minimum sample size estimated was n=186 women per group, with a total sample of 558 women. This estimate is capable of detecting a difference of proportion equal to 1.8% among the 67.5% of women who reported feeling less pain during labor and 85.7% with more pain during the delivery, considering a 6:1 ratio, test strength of 80% and significance level at5%[11].

Because one of the groups did not achieve the sample size, a new test strength value was obtained, with the following values for the respective groups: LLS=73%, lithotomy (LITHO)=53% and SS =86%.

A questionnaire was designed to be answered by the puerperal women, based on the Postpartum Questionnaire created by the *Grupo de Parto Alternativo do Centro de Atenção Integral à Saúde da Mulher (CAISM)* – Hospital da Mulher - the Group for Alternative Childbirth at the Center of Comprehensive Care Women's Health - Women's Hospital – University of Campinas, which was used with the author's[11] authorization.

Because of the adaptions made to the questionnaire, a content validation process was necessary[12]. Hence, a group of judges was composed to analyze the instrument. Seven health workers agreed to participate as judges, and provided written consent. The judges received an invitation letter explaining the study objectives and the aspects they should evaluate, together with a copy of the original and the adapted instrument. Each judge evaluated the instrument alone and as a group, aiming to reach consensus. The judges agreed with the adaption and requested some changes to improve the clarity of the questions.

The validated questionnaire was tested with 10 puerperal women, who were not included in the study. The women did not report any doubts as to filling in the questionnaire; thus no further changes were needed.

The questionnaire included the following control variables: age; marital status; conjugal status; skin color; education level; follow-up with a health professional; previous experience with pain; number of pregnancies; number and type of delivery; number of abortions or miscarriages; number of prenatal consultations; planning the pregnancy; if the partner accepted the pregnancy; weight gain; presence of the partner during the dilation and expulsive stage; non-pharmaceutical methods for pain relief used during labor and delivery; and using the Kristeller maneuver.

The following control variables were obtained from the patient record: weight of the newborn; surgical interventions during childbirth; health professional who followed the delivery; health professional who performed the delivery; different fetal positions; length of the dilation period (minutes); time of membrane rupture (minutes); length of the expulsive stage (minutes); time between admission and finishing childbirth (minutes). The instrument also included the following study variables: intensity of pain during labor and delivery (painless delivery, very bearable pain; bearable pain; barely unbearable pain); behavior (excellent [labor with no tremors and nor nervousness], very good [labor with considerable effort to keep fear and nervousness under control], good [good behavior but loosing control in some moments], regular [when the women was not able to control her behavior most of the time], and position (SS, LLS or LITHO).

It should be highlighted that behavior was evaluated by the woman herself, as literature shows that women at childbirth try not to show their emotions[5] and the health professional or any other observer could make a wrong evaluation.

A Visual Analogue Scale (VAS) was also used to in the evaluation of pain, which consists of a 10cm horizontal line without any numbers, and the words *no pain* on the left end and *unbearable pain* on the right end of the line. The closer a mark is to the right, the greater the intensity of

pain. Finally, and Alphanumeric Scale (ANS) was used, which consists of a 10cm horizontal line, numbered 0 to 10, which permits to evaluate the intensity of pain by marking one of the values between 0 and 10, with 0 referring to *no pain* and 10 to *maximal pain*.

It should be noted that the researchers who applied the questionnaire does not work at the hospital. Data collection took place at the Rooming-in in the morning. Women were approached if they were in the immediate puerperium period, i.e., about 12 hours postpartum. The researcher explained the study purpose to the women, and read the consent term that was handed to the participants. After obtaining written consent, the researcher handed the postpartum questionnaire and then the visual analogic (VAS) and the alphanumeric (ANS) scales to be completed.

Participants took about ten minutes to complete the instruments. Their answers regarding pain and behavior were given according to their own perception and without interference from others. This study was approved by the university research ethics committee (review document number 049/2008).

Statistical analysis

A databank was created using Excel 6.0 (Microsoft), in which the data was input and confirmed. Variables underwent descriptive analysis and both absolute (n) and relative (%) frequencies were obtained.

After covariance analysis using ANCOVA, the following items were considered adjustment variables: marital status; skin color; number of pregnancies; number of caesarians; and number of procedures (breathing and massage techniques, and exercises using a ball). The other different variable between the groups (number of deliveries, weight gain, pain-relief procedures– hip swing, interventions – episiotomy or rupture/episiotomy suture, different fetal positions) were not considered as co-variables because of there were few cases, which made multivariate analysis impossible.

The data was presented as means, standard deviation, median and minimum and maximum values. The comparison of pain (VAS and ANS) between the two periods, labor and childbirth, was performed using the paired Wilcoxon test (Wilcoxon Signed Rank-Test). Homogeneity between different positions regarding the control variables was evaluated using Chi-square, Fisher's or Kruskal-Wallis tests. The association between pain and behavior (both using the questionnaire) was evaluated by the Fisher's exact test, and the association between pain and the two periods (labor and childbirth), as well as with behavior was evaluated using the Fisher's Exact Test or the McNemar Test (with categories grouped two-by-two). To evaluate pain (VAS and ANS) in the different positions at each time, a mathematical transformation (BOXCOX) was used to obtain the normal distribution of the data, with the purpose to use ANCOVA to perform the adjustment analysis with different variables between different positions, followed by the Fisher's Exact test. Pain (on the questionnaire) was evaluated according to the type of position using the Chi-square and Fisher's Exact tests. Pain (VAS and ANS), according to behavior, was evaluated using the Kruskal-Wallis test, and significant cases were further evaluated by means of multiple comparisons by the Mann-Whitney test. To correlate the pain evaluated by the VAS and ANS, Spearman's Correlation Coefficient was used, and to verify if there was an association between the questionnaire and the two scales, the Kruskal-Wallis test was used. The significance level was 5%[11] and the software used was SAS 9.1.3.

RESULTS

Interviews were performed with 186 women who had delivered in the SS position, 186 women in the LLS, and 46 women in LITHO, over a six-month period. Two of the women who met the inclusion criteria did not agree to participate in the study.

In Brazil, childbirth in the lithotomy position is very common. Therefore it was important to include this position in the comparison. However, the smaller number of women delivering in the lithotomy position was because the institution offers, and, to some extent, encourages childbirth in the SS and LLS positions, though the women eventually make that choice. The data collection period was not prolonged as it was possible to contemplate the study objectives in spite of the smaller size of the sample of women in the LITHO position, because there was a significant difference between the groups. Tables 1 and 2 show the intensity of pain during labor and delivery according to the women's position at childbirth.

The analysis of pain intensity during labor according to the three studied positions did not find any significant difference (VAS: p=0.5564 and ANS: p=0.3357). However, during delivery (second stage), it was found that pain was different between the LLS and lithotomy positions (VAS: p=0.003; ANS: p=0.0003), i.e., women who delivered in a lithotomy position reported having less pain. It should be emphasized that the duration of the expulsive stage was similar in the three positions (p=0.171, according to the Kruskal-Wallis test).

As shown in Table 2, the women who had childbirth in the LLS and SS positions usually reported pain, in both moments, as *bearable* and *barely unbearable*. The women who delivered in the lithotomy position reported experiencing a *very bearable* pain during childbirth, compared to the women who delivered in the other positions; however, with no significant difference in labor or delivery (p=0.0535 and p=0.1332, respectively, using the Fisher's exact test).

Table 1 - Intensity of pain during labor and delivery according to the women's position at childbirth, using the Visual-Analog (VAS) and Alphanumeric (ANS) Scales - Itapecerica da Serra - 2008-2009

Variables	N	Mean	Standard deviation VAS	Minimum	Median	Maximum
Labor						
LLS	186	8,02	2,32	0,00	8,80	10,00
LITHO	46	8,11	1,99	2,70	9,10	9,90
SS	186	7,86	2,13	0,30	8,50	10,00
Delivery						
LLS	186	8,04	2,31	0,00	8,60	10,00
LITHO	46	6,91	2,31	2,60	6,30	10,00
SS	186	7,59	2,46	0,80	8,50	10,00
			ANS			
Labor						
LLS	186	8,04	1,97	1,50	8,35	10,00
LITHO	46	7,88	2,01	2,70	8,65	9,90
SS	186	7,87	1,90	0,80	8,10	10,00
Delivery						
LLS	186	8,12	2,08	0,50	9,00	10,00
LITHO	46	6,92	2,09	3,70	7,35	9,70
SS	186	7,68	2,29	1,00	8,45	10,00

Legend: LLS = lying on the left side; LITHO = lithotomy; SS = semi-seated

Table 2 - Intensity of pain during labor and delivery according to the women's position at childbirth, using the questionnaire as the assessment tool - Itapecerica da Serra - 2008-2009

	LLS (n=186)		LITHO (n=46)		SS (n=186)	
	N	%	N	%	N	%
Pain during labor						
No pain	0	0.0	0	0.0	5	2.7
Very bearable pain	23	12.4	6	13.0	30	16.1
Bearable pain	74	39.8	20	43.5	78	41.9
Barely unbearable pain	89	47.8	20	43.5	73	39.2
Pain during delivery						
No pain	0	0.0	0	0.0	2	1.1
Very bearable pain	26	14.0	14	30.4	32	17.2
Bearable pain	88	47.3	19	41.3	84	45.2
Barely unbearable pain	72	38.7	13	28.3	65	34.9

Legend: LLS = lying on the left side; LITHO = lithotomy; SS = semi-seated

Table 3 shows the women's behavior during labor and delivery according to the different positions at childbirth. Using the chi-square test, a difference was observed between the groups for both labor and delivery (p=0.0002 and p=0.044, respectively). More women reported having an *excellent* or *very good* behavior during labor and delivery (38.1% and 41.4%, respectively) in the LLS group.

As for the association between the intensity of pain and behavior during labor and delivery, independent of the position, it was observed that there was a positive association with both (the greater the pain, the worse the behavior) during labor as well as during delivery (p<0.0001 according to Fisher's exact test, in both moments, and by the McNemar chi-square test, when categories are grouped, with p = 0.0041 in the comparison for labor, and p<0.0001 for delivery).

The pain evaluated by the VAS and ANS during labor has a positive association with pain during delivery (p<0.0001 by both the Fisher's exact test and McNemar's chi-square test, when categories are grouped). Considering the sample as a whole, i.e., all 418 women, disregarding their position at childbirth and using the Paired Wilcoxon test, no differences in pain were observed in the two moments, using either the VAS (p=0.0611) or the ANS (p=0.2938). In other words, the pain during delivery was not greater or smaller than the pain during labor. The same results were observed using the questionnaire (p=0.2274 and p=0.1653, in labor and delivery, respectively).

Table 3 - Behavior during labor and delivery, according to the women's position at childbirth - Itapecerica da Serra - 2008-2009

	LLS (n=186)		LITHO (n=46)		SS (n=186)	
	N	%	N	%	N	%
Behavior during Labor						
Excellent	25	13.4	4	8.7	12	6.5
Very good	46	24.7	5	10.9	34	18.3
Good	87	46.8	16	34.8	89	47.8
Regular	28	15.1	21	45.7	51	27.4
Behavior during delivery						
Excellent	35	18.8	2	4.3	17	9.1
Very good	42	22.6	9	19.6	39	21.0
Good	82	44.1	28	60.9	99	53.2
Regular	27	14.5	7	15.2	31	16.7

Legend: LLS = lying on the left side; LITHO = lithotomy; SS = semi-seated

The correspondence between the instruments used in the study was verified, i.e., between the pain scales and the questionnaire. The Kruskal-Wallis test revealed a positive association between the questionnaire and the VAS and ANS scales in labor ($p<0.0001$, for both) and delivery ($p=0.0003$ and $p=0.0027$, respectively). Spearman's correlation coefficient revealed there is a significant positive correlation between the VAS and ANS scales, showing that they are strong and directly proportional ($r=0.8361$ $p<0.0001$, in labor; $r=0.8102$ $p<0.0001$, in delivery).

An association was observed between behavior during labor and behavior during delivery ($p<0.0001$ on the Exact Fisher's Test as well as by the McNemar's chi-square test, when categories are grouped).

DISCUSSION

The women, independent of the positions they chose, reported the intensity of the pain they experienced during labor with average values ranging between 7 and 8, and most referred experiencing *bearable* or *barely unbearable* pain.

The intensity of pain perceived by the women during labor and delivery, and evaluated using three instruments did not show any differences associated to the positions at childbirth, hence it cannot be affirmed that women who delivered in a lithotomy position were less sensitive to pain.

In the present study, it was not possible to obtain information about the position that the women chose to use during labor, because the women were free to assume different positions. Although no differences were found between the groups in terms of pain intensity, an analytical study has shown that position can interfere in the uterine contractions, the duration of the dilation stage and the perception of pain[13]. The referred study was performed with 75 women who had natural child birth, and analyzed the effect of walking during labor and found that when labor progresses in the pelvis stage of labor there may be an increased perception of pain as a result of the how fast the fetus descends in the mother's pelvis[13].

It is known that in the vertical position, the contractions are more regular in terms of form and rhythm. Certainly for this reason, the vertical position during labor has a positive effect on contractions, permitting a better quality in obtaining uterine dynamics, reducing the length of labor and reducing the need for oxytocin[13]. Furthermore, the study also refers that, in the vertical position, the action of gravity on the fetus is synergic with that of the contractions.

After a long period investigating about the mother's hormone concentrations, two studies concluded that there is an association between beta-endorphin (β-EP) levels and physiological stress during labor. The levels of β-EP and adrenocorticotrophic hormones (ACTH) are higher in the mother's plasma, and are closely interrelated during labor and until 24 hours postpartum[14-15]. A study performed with the purpose of describing the physiological role of ACTH in the stress mechanism, as a response to pain during labor, found there was a considerable increase in the concentration of β-EP and ACTH[15]. Confirming this finding, other studies found that higher concentrations of β-EP and ACTH are associated with the increase in the state of anxiety and subjective pain during labor and its decline in the postpartum period, with the abolition of pain[16].

A study obtained similar findings when evaluating the ACTH concentration in 36 parturient women, and observed that there was an increase in ACTH levels in the beginning of labor and the concentration decreased as the labor progressed towards delivery[17]. The present study, however, did not find any differences in the pain perceived by women in labor[15-19].

As for the pain perceived during delivery, it was found that women who gave birth in the lithotomy position reported experiencing pain of lower intensity, compared to those in the LLS position, which cannot be explained by the duration of the expulsive stage. The former was con-

sidered to be a control variable, since a shorter or longer period could reduce or increase the intensity of pain.

Although the literature shows that the position at childbirth can reduce the length of the expulsive stage, this was not observed in the present study. The aforementioned study, which involved nuliparae who gave birth in the squatting or lithotomy position, did not find any significant differences regarding the duration of the expulsive stage[11]. Different results were found in a study performed with 179 women who gave birth in the SS position and 187 in the lithotomy position (control group), which concluded that the length of the expulsive stage was shorter in the SS position group[17].

In another study, the same author investigated the delivery of 151 women randomly divided into two groups, in which 73 women had had a vertical delivery and 78 had a horizontal delivery, and found that the length of the expulsive stage was similar for the two groups. Nevertheless, the time of perineal distention during expulsion was, in average, shorter when delivery was considered as being performed in a vertical position[17].

Having childbirth in the LLS position reduced the use of episiotomy and perineal traumas compared to the SS[9] position, which is referred to as being vertical. Because there is a smaller risk for perineal trauma, it is likely that the distention stage is longer, permitting the perineum to distend slower, without rupturing, thus causing more pain in the women. These conjectures require further investigation.

A case-control study performed with two groups of women who had vertical and horizontal childbirth found that there is no single best position for the expulsive stage, rather there is a broad range of preferences among women, which may change during the labor process. The vertical positions and mobility during labor are, undoubtedly, acceptable and comfortable for the parturient women, as shown by the high degree of cooperation, despite the lack of specific prenatal preparations[18].

Pain as evaluated by the VAS and ANS scales was associated with the behavior in labor and in delivery, i.e., the greater the pain in labor and delivery, the worse the behavior reported by the women in both groups. The same results were obtained when comparing the answers to the questionnaire on pain and behavior in labor and delivery.

An ethnographic study performed through interviews and direct observation of women in labor and during delivery concluded that women adopt non-verbal behaviors to relieve pain, often associated or alternated with oral expression. Sometimes more than one non-verbal behavior is used in the search to relieve pain[19]. False beliefs, inadequate etiological attributions, excessive concentration of attention, their having inappropriate expectations, unfounded fears, negative thoughts, distorted information and concepts, all are cognitive features that can have a dramatic effect on the women's perception of pain and on their response to it [19].

There were no differences regarding pain or behavior in the two moments, dilation and expulsive stages. Different results were found in a descriptive study that used a qualitative approach to observe 10 women during labor and delivery, which concluded that there is a need for improving the obstetrical practice regarding pain in labor and delivery, especially in the active stage, when women report greater pain[20]. Another randomized study with 89 women evaluated the length and progression of labor, pain, obstetric complications and behavior, and found that as labor progresses, contractions intensify and dilation increases, women report feeling more and more pain, anger, sadness and tiredness and gradually less energy and positive feelings[21].

The importance of measuring pain clinically has drawn more attention over the last decades because of the new concept about the mechanisms involved in pain interpretation and response[22].

One-dimensional instruments remain the most common to measure pain, but the challenge to consider the multidimensional aspect of pain has driven several researchers to elaborate and use instruments that are broader and offer better precision[22]. It is known that one-dimensional and multidimensional scales both have some limitations, and though the instruments used in the present study are of easy application and have proven useful to evaluate pain in labor and delivery, there is still the challenge to search for an instrument that is easy to apply in clinical practice, while also considering the multidimensional feature and specificity of pain in labor and delivery.

CONCLUSION

In view of the findings, some questions remain unanswered and could be the theme for further investigations: could it be that women in the LLS position feel more pain during the expulsive stage because the length of perineal distention is longer in this position? Did any uncontrolled variable interfere on the results? It should be noticed that the institution where the study took place allows women to chose the position for childbirth, therefore the use of a position not chosen by the women, would, initially, not explain the greater pain in LLS, but it is an aspect that should be looked into.

Because only a few variables were adjusted, others could be interfering in the obtained results, therefore further prospective, controlled and randomized studies should be developed.

Studies that evaluate pain in labor and delivery, searching for a theoretical framework for pain relief interventions, are important, but it should be emphasized that relieving discomfort goes beyond performing biological interventions. The focus should permit women to express their feelings, in a way that the subjectivities emerge. To do this, it is necessary to listen the women experiencing pain and seek

alternatives to relief their suffering such as the position at childbirth that better suits them and offer the necessary means to respect their right to give birth with dignity.

The present study permitted to conclude that pain in labor and delivery was considered more frequently as *bearable* and *barely unbearable*, pain and behavior were not different in the two stages, and the evaluation instruments used were equivalent in terms of pain, with the VAS and ANS were more adequate to identify the differences. There is an association between the intensity of pain and behavior in both labor and delivery, and pain in women who had childbirth in the lithotomy position was smaller than those who chose to deliver in the LLS position

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