

# Evaluation of pain before and after vaginal delivery

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## Summary

**Purpose:** The objective of this pilot study was to determine pain characteristics of pregnant women immediately before and after childbirth by vaginal delivery and to compare them with the pain intensity reported by physicians. **Methods:** We evaluated 20 Brazilian women between September and December 2007 with the WHOQOL-Bref instrument, VAS, McGill Pain Questionnaire, and Anxiety Adapted Scale. We interviewed the obstetrician with the VAS about the patient's pain. Data were analyzed with the chi-square test. **Results:** Mean age was 22.35 years (SD = 6.24, range 15-39 years). It was necessary to use oxytocin in 15 (75%) patients, which had no correlation with anxiety degree. Higher intensity of pain ( $p < 0.05$ ) and higher anxiety index ( $p < 0.05$ ) were more common in women in the first pregnancy. **Conclusions:** Higher pain intensity was associated with higher anxiety levels ( $p < 0.05$ ). Around half of the obstetricians' VAS scores were lower than the VAS scores of women, and probably pain at labor was underestimated and not controlled. Higher indices of anxiety and pain were associated, and were more frequent in women in the first pregnancy.

**Key words:** Vaginal delivery; Pain; Quality of life; Childbirth; Anxiety.

## Introduction

Pain is "an unpleasant sensory and emotional experience associated with real or potential tissue damage, or described in terms of such damage" (*International Association for the Study of Pain*). There are many pain behaviors due to the exposition and learning, previous experience and nociception. It is important to understand pain in a complex picture which includes individual and environmental influences [1]. Due to pain subjectivity, it is difficult to measure and variable signs, symptoms and behaviors are common. All perceived pain must be believed, evaluated, and treated with respect and knowledge in a broad way [2], and it is always associated with suffering [1].

Many studies have been performed aimed at alleviating pain of childbirth and labor. Pain can be modulated by affective factors, as fear and anxiety; cognitive factors, as pain anticipation; and organic causes, as sympathetic activation and increase in muscular tension [1]. The type of labor also influences the expected pain, and many women in Brazil prefer the cesarean technique because of cultural and social issues, and because of the hope of feeling less pain associated with labor [3]. Current anesthesia techniques permit higher female transoperative participation, and many alternative options can help (aromatherapy, chiropraxy, ball techniques, music therapy, and hydrotherapy) [3].

Before undergoing childbirth by natural labor, there is an imposition of routine and obstetric interferences which may inhibit the natural unchaining of physiological mechanisms, thus inducing pregnant women to feel inca-

pable, alienated and in pain. Hence, it is not surprising that women prefer cesarean as the best form of childbirth without fear, risk or pain. Some interventions during labor may amplify pain such a immobilization, abusive use of oxytocin, forceps, exam and so on [4, 5].

On the other hand, natural labor is a process which involves physiological, mental, and social aspects. It is necessary to understand this process to avoid the negative impression of pain [5, 6]. There are few studies in the scientific literature that demonstrate an objective way of evaluating the expected and experienced pain of labor or associated factors, and the evaluation of the physician about women's pain.

The objective of this study was to determine pain characteristics of pregnant women immediately before and after vaginal childbirth and compare them with pain intensity reported by the obstetrician, as well as to analyze the quality of life and anxiety level of these patients.

## Patients and Methods

We evaluated 20 women that came to the University Foundation of Health of Taubaté, Brazil, between September and December 2007. They were all in labor and had indicated they wanted natural childbirth. All obstetricians that assisted with childbirth were also interviewed. The Ethics Committee approved this study and all patients and obstetricians signed the consent form.

**Exclusion criteria:** Women with systemic diseases with painful symptomatology; cesarean childbirth indications; psychiatric diseases; epidural anesthesia or other analgesic therapies for childbirth pain.

**Evaluations:** Patients were evaluated at two distinct times:

- 1) Before childbirth, up to 48 hours;
- 2) Seven days after childbirth.

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The interview was performed with the pregnant women and the obstetrician responsible for the case at both evaluations. Questions were asked in relation to childbirth pain (e.g., before delivery, women were interviewed regarding what they expected to feel and after delivery about what they experienced during childbirth).

#### Interviews:

1) Pregnant women: The following instruments were used at both evaluations.

- Questionnaire WHOQOL-Bref (World Health Organization Quality of Life), validated in the Portuguese language [7, 8] to analyze quality of life;

- Numeric visual analog scale (VAS) to analyze the maximum intensity of pain expected or felt;

- McGill Pain Questionnaire validated in the Portuguese language [9] to analyze the quality of pain;

- Anxiety scale, adapted from DAS (dental anxiety scale), validated in the Portuguese language [10] for anxiety aspects associated with surgical procedure expectations.

2) Obstetrician: The numeric VAS was implemented as an instrument to verify maximum pain intensity that was inferred about woman at both evaluations.

Data were statistically analyzed using the chi-square test, paired T-test and ANOVA with the significance level being 0.05.

## Results

Twenty pregnant women were evaluated from September to December 2007, corresponding to all women in labor that were assessed for natural delivery at the University Foundation of Health of Taubate, Brazil. The mean age was 22.35 years old (SD = 6.24, range 15-39 years); eight women (40%) were in the first pregnancy, and the rest of had a mean of 2.25 children (SD = 1.5; range 1-6): It was necessary to use oxytocin in 15 (75%) women. Mean dilatation of the uterine colon was 3.4 cm (SD = 1.9; range of 0-6 cm).

#### Quality of Life (WHOQOL-Bref)

There were no differences between either evaluation in the final scores of quality of life by the WHOQOL-Bref in this sample. However, for specific issues there were some differences, except for the psychological domain in negative feelings (Table 1). There was a slight but non significant increase on the dependence of medical aid, an improvement in mobility ( $p < 0.05$ ) (Table 2), a reduction in sexual activity satisfaction ( $p < 0.05$ ) (Table 3), an improvement in security sensation ( $p < 0.05$ ) and a reduction in leisure activities ( $p < 0.05$ ) (Table 4) after childbirth.

Work capacity was correlated with self-esteem ( $p < 0.05$ ) and higher VAS scores ( $p < 0.05$ ). Work capacity improved after childbirth ( $p < 0.05$ ). The worst financial resources ( $p < 0.05$ ) were correlated to higher VAS scores of women after childbirth. On the other hand, social support was correlated to lower VAS scores ( $p < 0.05$ ).

#### Quality of Pain (McGill Pain Questionnaire)

The most common pain descriptors were hot ( $p < 0.001$ ), heavy ( $p < 0.01$ ) cold ( $p < 0.05$ ), crushing ( $p < 0.05$ ), and cruel ( $p < 0.05$ ). We observed that the descriptor “cramping”, often associated with uterine pain, was maintained.

Table 1. — Psychological domain of quality of life (WHOQOL-Bref) ( $n = 20$ ).

	Before childbirth	After childbirth
Negative feelings	Never	2 (10%)
	Sometimes	17 (85%)*
	Often	0 (0%)
	Very often	0 (0%)
	Always	1 (5%)
	Did not answer	0 (0%)

\*There was no difference in negative feelings between evaluations.

Table 2. — Physical health domain of quality of life (WHOQOL-Bref) ( $n = 20$ ).

	Before childbirth	After childbirth
Dependence on medical aid	None	2 (10%)
	Little	13 (65%)*
	High	3 (15%)
	Very high	2 (10%)
	Did not answer	0 (0%)
	Bad	4 (20%)
	Indifferent	6 (30%)
	Good	7 (35%)
	Very good	3 (15%)**
	Did not answer	0 (0%)

\* $p < 0.05$ : Increased dependence on medical aid. \*\* $p < 0.05$ : Improvement in mobility.

Table 3. — Social relationship domain of quality of life (WHOQOL-Bref) ( $n = 20$ ).

	Before childbirth	After childbirth
Sexual activity satisfaction	Very unsatisfied	1 (5%)
	Unsatisfied	0 (0%)
	Indifferent	6 (30%)*
	Satisfied	10 (50%)
	Very satisfied	3 (15%)
	Did not answer	0 (0%)

$p < 0.05$ : Reduction in sexual activity satisfaction.

Table 4. — Environmental domain of quality of life (WHOQOL-Bref) ( $n = 20$ ).

	Before childbirth	After childbirth
Security perception	None	0 (0%)
	Very little	1 (5%)
	Little	4 (20%)
	Secure	14 (70%)*
	Very secure	1 (5%)
	Did not answer	0 (0%)
Leisure activities	None	0 (0%)
	Very few	6 (30%)
	Few	10 (50%)**
	Many	2 (10%)
	Completely	2 (10%)
	Did not answer	0 (0%)

\* $p < 0.05$ : Increased security perception. \*\* $p < 0.05$ : Reduction in leisure activities.

Table 5. — Intensity of pain (VAS) ( $n = 20$ ).

	Before childbirth	After childbirth
Women	7.7 ± 2.3	7.9 ± 2.5
Obstetricians	7.6 ± 2.1	7.0 ± 2.1

### Intensity of Pain (VAS)

Although there were no differences in means of intensity of pain between the women and the obstetricians (Table 5), during labor only 23% of the data between the patient and obstetrician were the same, and after childbirth the similarity was 25%. Before delivery, 46% of the physicians expected lower pain than the expectation of the pregnant women, and after childbirth this percentage increased to 58.33%.

Among women, 50% had the same intensity of pain during labor and seven days after delivery, 30% had higher pain scores after childbirth and 20% reported lower perceived pain than what they had expected before.

The higher intensity of pain (VAS) ( $p < 0.05$ ) was more common in women during the first pregnancy and was correlated to higher pain intensity after childbirth ( $p < 0.05$ ). The higher levels of pain after childbirth were correlated with the following McGill descriptors: lacerating ( $p < 0.05$ ), cruel ( $p < 0.05$ ) and grueling ( $p < 0.05$ ).

### Anxiety (DAS adapted)

Total score for mean of anxiety at labor was  $14.7 \pm 3.2$  and after childbirth it was  $15.4 \pm 3.0$ . There was no correlation between the use of oxytocin and anxiety degree. The higher anxiety index ( $p < 0.05$ ) was more common in women in the first pregnancy. There was no correlation between number of children and anxiety.

The higher anxiety index of labor evaluation was associated with higher pain intensity after childbirth ( $p < 0.05$ ), and with the following McGill descriptors: heavy ( $p < 0.01$ ), splitting ( $p < 0.05$ ), grueling ( $p < 0.001$ ), beating ( $p < 0.05$ ), crushing (n.s.), piercing ( $p < 0.05$ ), cool ( $p < 0.05$ ) and lacerating ( $p = 0.05$ ); the descriptor "pounding" was associated with anxiety due to expectation of surgery ( $p < 0.05$ ). The descriptor "grueling" was correlated with all four questions of the DAS adapted questionnaire ( $p = 0.001$ ). After childbirth, the McGill pain descriptors correlated with higher levels of anxiety included pricking ( $p < 0.05$ ), hot ( $p < 0.05$ ), cruel ( $p < 0.05$ ), troublesome ( $p < 0.05$ ), tearing ( $p < 0.01$ ), cool ( $p < 0.01$ ) and piercing ( $p < 0.05$ ).

## Discussion

Pain depends on biological, psychological and social factors, according to its own definition. In general, it is associated with negative feelings. Therefore, when associated with childbirth the motivation of pain (the fact of having a baby) complicates pain interpretation. Moreover, interpersonal relationships, living conditions and housing are involved in pregnancy, childbirth, and associated pain [8].

Many professionals do not consider parturient complaints, and when the behavior is exaggerated, they criticize and reprehend it. Pain is individual and depends on the previous experiences of the woman and on the psychosocial context in which she is involved [9]. In the absence of previous experience, painful behavior can vary, and in our study there was a significant correlation

between higher pain intensity and women in the first pregnancy. Also anxiety was higher in these patients. The fear of the unknown, associated with the common belief of intense pain at childbirth is underlying. Western societies do not tolerate feeling any pain and search for relief with analgesic techniques or with less painful childbirth (as cesarean) which allows a higher degree of tranquility [8, 11, 12].

As pain is subjective, it cannot be measured only by the behavior that the individual has, nor can health professionals that are assessing the case always predict it. In the patients in this sample, we observed that before and after childbirth in only one quarter of the cases was there a correlation in the intensity of pain by the patient with the intensity predicted by the obstetricians (they reported the same value). It is noteworthy that in the majority of cases the intensity referred by the obstetrician was inferior to the intensity referred by the women, clearly suggesting that pain is underestimated by health professionals. This aspect has already been observed in other painful conditions, such as joint pain [13]. This attitude may result in lower analgesic strategies and more suffering by pregnant women. It is known that innumerable procedures, many non invasive, may collaborate to reduce the anxiety at the time of childbirth and aid in controlling pain.

In our data, we found differences between patient anxiety before and after childbirth but no differences in quality of life. It is known that anxiety contributes to pain and needs to be considered when attempting to control it. In fact, it was correlated with higher pain intensity predicted before childbirth. In this study we should also consider that shared rooms and often the impossibility to have a relative in the room during labor may be correlated with higher indices of anxiety in these patients. Pain involves cognitive factors, and the explanation and demystification of natural childbirth with clear information about labor and associated phenomena are necessary measures. It should also be remembered that pain during labor is visceral, and thus often does not have an exact localization. It is usually diffused and determines referral pain, often with high emotional connotations [14, 15]. In fact, descriptors of quality of life were correlated to the anxiety index and the reflexion of this great emotional impact can be observed by the descriptors: before childbirth, splitting, grueling, crushing (n.s.), piercing, lacerating, and after childbirth, cruel, tearing, piercing.

When we analyzed isolated questions about the quality of life, social support was significantly correlated to a lower intensity of pain and fewer financial resources with higher intensity of pain, which supports the role of socioeconomic factors in the general perception of pain [8, 16, 17]. Work capacity was significantly correlated to self-esteem and there was an increase in the sensation of security, which could reflect satisfaction with motherhood. Associated with the security that women feel while taking care of the baby, there is the responsibility and reduction in leisure activities, once that now she must occupy her attention and time for the child.

After childbirth, there was an increase in the need of

medical aids, which demonstrates that even in natural childbirth, the postoperative period needs special attention. Consequently it is interesting that the mobility increased, probably because of the reduction in weight and abdominal volume and the satisfaction with motherhood, which also increased the perception about the capacity of doing daily activities. The post-labor period up to seven days also reflected lower satisfaction with sexual activity than before delivery, which might be associated with taking care of the baby and depression that can occur in this period [8, 16].

In conclusion, we observed that there was no difference in general quality of life before and after childbirth, and higher pain intensity was associated with higher anxiety levels; higher indices of anxiety and pain were associated, and were more frequent in women in the first pregnancy. Intensity of pain between women and obstetricians corresponded only in one quarter of the cases, but in the majority the intensity of pain predicted by the obstetrician was lower than what was reported by the parturient.

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