

## COMPARATIVE STUDY REGARDING THE INFLUENCE OF PAIN MANAGEMENT ON LABOR DEPLOYMENT

CIOBANU DORIANA<sup>1</sup>, DEAC ANCA<sup>1</sup>, LOZINCĂ IZABELA<sup>1</sup>

Faculty of Physical Education and Sport, University of Oradea, ROMANIA

### Abstract

**Purpose.** For most women, pain and labor are equivalent. Pain during childbirth is considered by the pregnant woman the most concerning aspect they have to face during pregnancy. However, if we take into account the functions of pain during labor, we can say that pain is a necessary evil which can be ameliorated until it becomes bearable through specific methods and means.

Anxiety and stress are very common during pregnancy, but not a good side effect of it. Pain is a big issue that pregnant women handle with, when arrive the big moment – the delivery.

The aim of this study is to determine the role of directed or passive relaxation and breathing exercises on labor deployment. We also want to determine the relationship between these exercises, pain level and drugs administration.

**Methods.** The study group consist of 70 pregnant women, in the third trimester, 35 from them having a relaxation and breathing exercises program. In order to asses the presence and the severity of anxiety and also it's evolution during pregnancy, the State – Trait Anxiety Inventory (STAI) (Robu, Viorel, 2009) was completed.

**Results.** In their majority, the outcomes are statistically representative ( $p < 0,01$ ) and that's means that the anxiety episodes are really reduced in pregnant women practiced both relaxation and breathing exercises. We also found that, the duration of labor was significantly reduced in women that practiced relaxation and breathing exercises. Drugs administration has a

**Conclusions.** These results comes to emphasize the fact that pregnant women does not have to be afraid about their pain during pregnancy, because, as this paperwork shows, there are efficient methods of pain management. Pregnant women should know that a natural birth came with a pain that became important for their following relation with their baby.

**Key words:** labor, delivery, pain management, function of pain

### Introduction

We live in a century in which information passes through in various forms of manifestation through seen and unseen channels, in codes and signs sometimes difficult to be understood by the human mind. The most severe mistakes and least excusable, in any activity or interaction domain, are those caused by lack of information or poor information. The basic need for reproduction is unfortunately often inhibited because of lack of information regarding what this thing means. The balance between the joy of having their own child and “the cost” of this happiness inclines for giving up, being shadowed by the future mother's concerns regarding the childbirth pains. As Dr. Chitulea (2001) well emphasized, the “fear of childbirth pains” has been transmitted from mother to daughter for almost 2000 years. Ignorance and disinformation generates anguishes to young women who represent for themselves in a terrifying manner the delivery of the baby, perceived as big and aggressive, through the genital ways, appreciated as incompetent for this phenomenon. (P. Chitulea, 2001). The unknown factor represented by not knowing the way in which labor happens, as well as the lack of information regarding the functions of pain during labor and the way in which the woman can face this painful challenge, will determine the mother to prefer the cesarean operation or epidural analgesia.

Women and babies have been interrelated since the very beginning. For many of them, pregnancy and delivery are often times of worry: how will the mom herself change, how painful the labor will be, can she handle it (J Teixeira,; D; Martin, O Prendiville,; V Glover,., 2005)? Anxiety attacks in pregnant women can have a physical as well as psychological aspect. This happens because during pregnancy, women's hormones go haywire, blood sugar levels fluctuate rapidly and there is lot of action going on inside the mother's body (Miu Andreea, 2008). Women can feel anxious over the actual birth process. They may be afraid that they will not know what to do once the baby is here. Pregnancy is a life-changing event. It is natural for woman to feel anxious. Sometimes these feelings turn into a full-blown anxiety or panic attack. Anxiety and panic attacks are more common in the last months of pregnancy (Getting Along with Anxiety Treatment in Pregnancy, 2009). This anxiety state determines to future mother the impossibility to relax its body during labor. That made it more and more painful, causing a vicious circle: fear – impossibility to relax – pain – fear... etc. This paper represents a plea in favor of natural birth which the young mother should be prepared to face. “Worldwide, there are nowadays two categories of psychosomatic “management” of childbirth. The first represents the complex preparation during the entire pregnancy period

containing: information (“darkness creates monster”), conditioning the pregnant woman to perceive the pregnancy and delivery as a physiological and deeply positive phenomenon, as well as a wide variety of techniques (from respiratory gymnastics to autogenous training etc.), of focusing attention on something else than painful uterine contractions” (P.Chitulea, , 2001).

### **A. Physical functions of pain**

#### **A.1. Pain as a guide in the on-going of labour and as a protector of mother and child**

The physiological function of pain is to protect the body by sending signals regarding possible aggressors so as we should be able to act in order to protect ourselves from danger.

*Action is the key* (L., Chertok, M. Bonnaud and D. Graham., 1969)

Child delivery is a physiological paradox. The woman, in order to bring a new life into the world, has to oppose her own body. She has to endure a visceral attack from her own body, fact which stands against any self-preservation principle.

This attack perceived upon her integrity, sets the woman’s body in a state of alarm, signalling the presence of danger through pain and inducing physiological defence reactions.

Pain becomes thus a very valuable guide in warning the mother and the baby about a danger, providing the woman the possibility to correct possible dangerous situations by triggering an instinctive response. (R Melzack., 1973)

In the context of labour, each action of the woman is translated through “attack”, move against something, against “danger”. From the feminine perspective of physiology, fight means abandon, opening. (S Taylor,..,2002).

#### **A.2. Pain as an endocrine stimulant**

The oxytocin necessary to trigger labour is produced first by the foetus, as a result of foetal and placenta hormonal modifications, being then produced by the mother as well. The cervix stimulation, caused by foetal and uterine activity, will determine the initial elimination of oxytocin. In this moment, the prodromal contractions are still irregular and inconsistent. (Enkin, M., M. Keirse; Chalmers I., 2000).

So that the body should get in the most active phase, characterized by long and strong contractions, it needs regular stimulation, in relation with the constant and increasing production of oxytocin. This regular stimulation is provided by intermittent pain. Pain creates momentary peaks of acute stress for the woman.

Her body will react by increasing the production of catecholamines which, produced during these peaks, will determine a paradoxical response of oxytocin production, stimulating in the same time the production of endorphins.

This process triggers the gradual increase of contractions, together with a greater tolerance to pain. When the catecholamines, on the other hand, are

produced constantly, they inhibit the production of oxytocin and endorphins. This could have as an effect the slowing down of labour and prolongation of prodromal contractions (Cass Pam, 2009), without determining an active labour, thus accentuating pain.

Oxytocin stimulates the secretion of prolactin, with important role in protecting foetal metabolism during labour, making easier the passage towards extra-uterine life. Prolactin also stimulates endorphin secretion. Therefore, the woman has four endorphin sources (endogenous calming): catecholamines, oxytocin, prolactin and parasympathetic nervous system, all interacting with the woman’s body during the breaks between contractions.

Because endorphins stop contractions, they are responsible with labour rhythm. Harmonious cooperation between the two autonomous systems is important especially during labour. The sympathetic system is actually responsible with the triggering of uterine contractions while the parasympathetic system regulates the distension of the lower segment of uterus and cervix. When the two systems do not act harmoniously, there occurs the increase risk of spastic contractions which do not produce dilation; it occurs the risk of dystocia between body and cervix, as well as uterine hypotonia with the so-called “passive dilation” and unproductive pain. Harmonious alternation of the two systems is favoured by the correct alternation between pain and relaxation.

Another important aspect of pain as endocrine stimulant refers to endorphin production.

The function of endorphins is not only to reduce pain, but also to induce, during the second part of dilation, an altered state of acknowledging, similar to hypnosis. This state facilitates the inhibition of the cortical-rational side of the brain, allowing the functions of the autonomous system to take control. Moreover, it allows the woman to completely abandon her ego and her own limits, leading to full dilation and foetus delivery. In the climax of delivery, when the foetus is eliminated and pain stimulation stops, the level of endorphin in the maternal body is so high that the woman will experience moments of ecstasy.

To endorphins it is owed the quality of formation of dependence and connection between mother and child. Attachment is the ground where the child is enrooted, grows and lives. Physiological delivery establishes in this way the foundation for the child’s ulterior survival and development.

### **B. Psychic functions of pain**

#### **B.1. Psychological functions of pain as expression of separation psychic pain**

One of the most demanding moments of delivery is separation from the child. The child is perceived by the woman both as a part of her own and a separate individual. The separation from a part of us or from a beloved person will always be a painful process. At child birth, this separation is partly desired, partly feared. (B Lieberman Adrienne., 1992)

In this context, pain has a double role. On one hand, it forces the woman towards a necessary separation, leaving no place for hesitations. As many women will probably never willingly assume this separation, pain helps them acknowledging the inevitable necessity of delivery, focusing all their attention towards that part of the body which is involved in the process (J.P Relier,. 1993). On the other hand, psychological pain becomes the expression of emotional pain caused by separation.

The intermittent pain, the rhythm of labour with transitory accelerations and slowing down, mark the passing of time. In the separation process time is important and individual.

### **C. Affective functions of pain**

The high level of endorphins produced by labour and the profound emotional experience induced by pain stimulates the limbic system of the primary brain which is responsible with the affective functions of the brain. The endorphins will induce to the mother a "sensitive state" towards delivery and child. They will allow the woman to focus all her instincts and senses upon the imminent delivery, thus allowing her to instinctively meet her child. This type of connection does not happen in the case of deliveries under analgesics. The sensitive state is very similar with "being in love". Actually, the woman is programmed "to fall in love" with her baby. In conclusion, we can notice how the pleasure of having a baby and caring for it comes from this psychological experience of pain, as well as the desire to have another baby.

### **Hypotheses**

Pregnant women who are practicing relaxation and breathing exercises during their pregnancy will have an increased capacity of coping with labor pain, in that way reducing drugs administration and having a shorter labor and delivery period.

There is a significant difference between the level of pregnant women's anxiety as state and trait from the initial assesment and the level of anxiety from the beginning of labor, inside the experimental group and the control group.

### **Subjects**

Participants were 70 pregnant women in the third trimester, having their first baby, attending 5 private obstetric consulting rooms in Oradea. Pregnant women had ages between: 21 – 25 years old (20%); 26 – 30 years old (50%); 31 – 35 years old (22%); 36 – 40 years old (8%). Most of women came from urban environment (74%) and the rest from rural environment (26%). 56% of women have high education, the rest of 44% having a college education.

The subjects were separated in two groups:

- experimental group - consist of pregnant women who followed an exercise program, in order to be fit for delivery

- control group – consist of pregnant women who choose not to follow an exercise program.

The pregnant women from experimental group (50%) followed a relaxation and breathing exercises program for a period of 12 weeks.

### **Material and methods**

From a physical point of view, pregnant woman learn how to lead the breathing, muscles and relaxation. The main advantage of these exercises is that allow to pregnant woman to be fit during pregnancy, to learn a correct breathing and a convenient relaxation. A pregnant woman who exercise is learning basic elements of relaxation, breathing, is capable to reduce her tension to a minimum level, strenghten the muscles, and when is time for birth, she can have an active participation to the birth process. Even so, a woman who done no exercise, but know how to deploys a labor, will bring the child to life in an easier manner than a pregnant woman with an athletic body and is ignoring exerithing about birth.

The exercise program consists of: exercise for learning the correct breathing; types of breathing specific to labor stage; types of breathing specific to delivery stage; exercises for mental and physical relaxation.

Breathing technique implies breathing with a certain number of repetitions and amplitudes. Some women prefer deep breathing, using the diafragma in order to fill their abdomen with air. Some of them prefer easy breathing, inhailing air as much as they fill their chest.

The purpose is that woman to find that breathing technique that help her to relax and to cool her down. Breathing must have a comfortable rhythm, do not shorten the breathing and do not induce dizziness. As much as knowledge about labor and delivery woman has, as much she will see all types of breathing techniques used in the different phases of labor.

Woman must learn how to use her breathing in order to concentrate, in that way, each contraction becoming a productive part of the labor. Breathing techniques are useful when woman is trying out different types of pain, discomfort, anxiety or fear. She will be able to use them in any day or stressful situation (Paterved Breathing durin Labour, 2007).

The pregnant woman's training consisted of the following means for fighting off the peripheral pain factors:

- deep breathing with prolonged exhale; vocalize (with open throat);
  - pelvis mobilizations
  - capacity to make the difference between tension and relaxation state;
  - capacity of quick relaxation of tensioned segments: a relaxed muscular tone will sedate the painful signals sent to the brain, in this way closing the control door of pain, localized in the posterior horn of the medulla.
- Painful stimulation is perceived by the brain at an inferior level:
- the movement during labor;

- massage, heating pillow, showers and hot bath in labor
- respecting the labor's physiological laws

The pregnant woman's training consisted also of the following means for fighting off the central pain factors:

- cultural deconditioning: changing the perception about the value of pain, creating the motivation and the possibility to choose;
- personal deconditioning: expressing personal experiences, positive conditioning in order to reduce fear and pain and creating some individual expectations;
  - working on the rhythm and on the actives and passives attitudes in the relationship with pain or other events;
  - knowledge of the existence of the pauses between contractions;
  - favoring the instinct and intuition;
  - positive affective communication with the partner and/ or other supportive persons;
  - the support of a midwife, known before labor;
  - maintaining the intimacy and the protection of the labor's place, in order to stimulate the instinctive behavior and to cut out any aggressive or disturbing factors;
  - stimulating the endorphins synthesis.

Traffic crowd, headache and daily chores are a good opportunity to pregnant women for exercising the different breathing technique, in that way becoming a daily routine. In order to simulate the labor, some prenatal physical educators suggest to pregnant women to hold an ice cube in her mouth, for an effective execution of breathing techniques, during the momentary pain that appear. (Bosomworth A, Bettany-Saltikov J., 2006).

Deep abdominal breathing can be practiced anytime: when reading, driving, at workplace, watching TV or in any other stressful moment etc. This kind of breathing is benefic not always in labor, but anytime in life.

It is important exercising the other breathing too, so that pregnant woman to be used to them and to be able to use them about 2 minutes and to not left out blast. If the dizziness occur, will be made a deep purifying breath, and that can remaking other breathings. If necessary pregnant woman can breath in with both hands close to the mouth and nose or in a paper bag. This breathing will be exercised from different positions: sitting, lied on a side, stand, on the knee and hands.

In order to not forgetting breathing techniques, pregnant woman can make some links, as: at the red light will do "hi-hi" type of breathing. When are commercials TV, she will do "hi-hi-huuu" breathing (S Downe, Trent Midwifery Group, C Young, et al., 2004).

Practicing the breathing techniques has many payoffs: breathing became an automatic response to pain. A mother more relaxed will respond in a positive manner to pain. The breathing rhythm will remain normal/ calm. Breathing techniques determine a wellbeing status and became a measure of control, will secure more oxygen in order to have strength and energy for mother and child; brings a purpose for each contraction, making them more productive.

Physically speaking, relaxation is not representing a decreasing of muscular tone, but a correction of it. Therefore, an essential element from training lessons is represented by having the capacity to voluntary relax of all body parts.

During relaxation program, woman must concentrate on the different parts of her body. She must induce a calm status by attention orientation.

Breathing and relaxation techniques become usual campaigners for stressful factors of daily living (Simkin, Penny, 2001).

### Measurements

In order to investigate the outcomes of exercise relaxation and breathing techniques on labor deployment, have been monitored: duration of labor, duration of delivery, pain intensity level, drugs administration. The labor and delivery duration was established in hours, respectively minutes.

For the assessment of duration of labor and delivery and drugs administration, we used a questionnaire consist of questions regarding these parameters. This questionnaire was applied to women, in the first day after natural birth. They were asked to complete a 4 items questionnaire, referring to: duration of labor (hours, minutes), duration of delivery (minutes), pain killers administration (yes/ no) and antispastic medication (yes/ no).

For the assessment of pain level was used the Pain Rating Scale.

A pain scale is a mean used by physicians and other health care providers to measure patient's pain, so that they can help plan how best to control it. Most pain scales use numbers from 0 to 10: 0 means no pain and 10 means the worst pain the person has ever known or felt.

The patient is asked to use the list below to find the number that best describes his/ her pain.

0 = No pain

1 to 5 = Mild pain

6 to 7 = Moderate pain

8 to 9 = Severe pain

10 = Worst pain possible (Jan Nissl, RN, BS, 2009)

Data distribution for both experimental group and for the control group has no normal distribution, and that make us to use the nonparametric tests. In order to make a comparison between the two study groups, we used the Mann-Whitney U test for independent test specimens.

“Represented by faces with expressions, this scale follows the same guideline as the numerical scale. Zero is represented by a smiley face, while 10 is represented as a distraught, crying face.

This scale is also useful when rating pain in children, or for adults with mild cognitive impairments.” (Jacques Erica, 2010). Subjects were asked to point the face that fits the most with the level of their pain.

In order to assess the level of anxiety, was used The Anxiety State and Trait Inventory (STAI) (V. Robu, 2009). This inventory is a self-report instrument that differentiates between the temporary condition of state anxiety and the longstanding quality of trait anxiety so that appropriate treatment can be developed. The STAI consists of two scales, both containing 20 items, with a range of four possible responses to each.. One scale addresses to a temporary condition - state anxiety (S-Anxiety) while the other scale addresses to a more general and long-standing condition - trait anxiety (T-Anxiety). The total score indicates which type of anxiety is prevalent. (Spielberger, C. D., Gorsuch, R.L., and Lushene. R.E., 1970).

The results of this questionnaire can be synthesized on the following levels of anxiety (state,

trait), as follows: low level (score between 20-34), mild level (score between 35-49) and high level (score between 50-60).

Informed consent from the pregnant women was obtained before data collection.

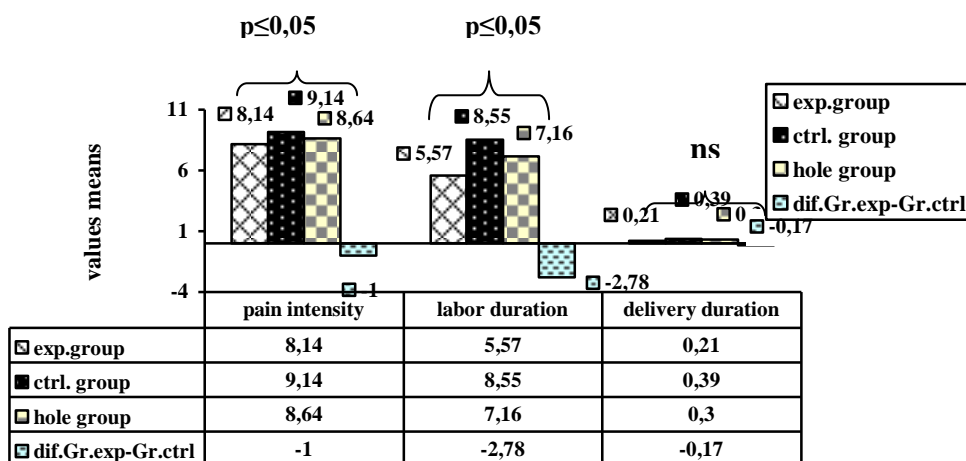
## Results

SPSS software was used in order to do the statistical data analysis. Table nr.1 consists of the initial characteristics (mean, std. dev.) of the entire studied group and separately, and both for the group of women who practiced relaxation and breathing techniques and the group of those who didn't. Also, the table presents the characteristics for the duration of labor and delivery and the level of pain.

In order to establish any association between the level of pain and the drug administration, was used the Chi<sup>2</sup> test of association (independence).

**Table nr. 1. Comparison between experimental and control groups for the initial characteristics (mean±std. dev.)**

Initial assessment	Entire group (70)	Exp. group (n = 35)	Ctrl. group (n = 35)	p
labor duration (hours)	7,16±2,71	5,57±2,72	8,55±2,49	ns
delivery duration (hours)	0,30±0,42	0,21±0,35	0,39±0,53	ns
pain intensity level in labor (score)	8,64±0,94	8,14±1,95	9,14±0,823	ns



**Diagram. nr.1 Comparison of the labor parameters between experimental and control group (pain intensity, labor and delivery duration)**

Mann-Whitney U Test for independent test specimens show that the evolution of observed parameters was different on experimental group towards control group, for: duration of labor and pain intensity level. Experimental group presented a low levels for pain intensity towards control group.

Delivery duration has not a diferent evolution between two groups.

Pregnant women from experimental group presents a pain level significantly decreased towards control group. This can be explained by the fact that

Pregnant women from experimental group had a labor duration (5h și 57 min.) significantly decreased ( $p = 0,000$ ) towards pregnant women from control group, who had 8h și 55 minute of labor duration.

Pregnant women from experimental group had a delivery duration (21 minutes) significantly decreased ( $p = 0,000$ ) towards pregnant women from control group, who had 39 minutes of delivery duration.

Reducing the pain level, labor and delivery duration are very important objectives in followed in labor deployment, because this stage is very demanding both for mother and child.

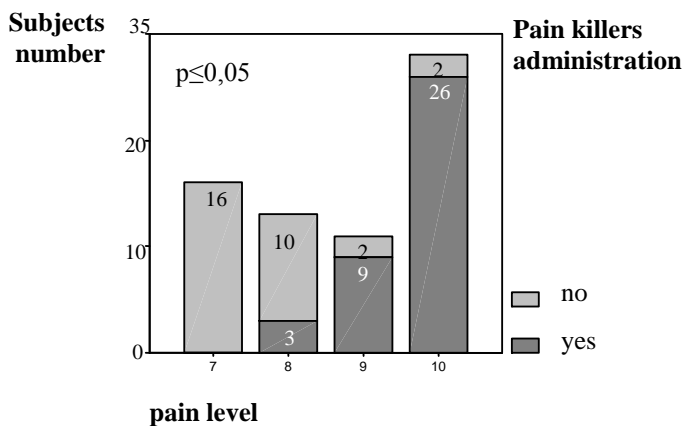
Where the statistical analisys provided, we can affirm that breathing and relaxaion techniques are very important in a correct and efficient orientation of labor

pregnant women from experimental group learned to control their pain by knowing and practicing the relaxation and breathing tehniques used during labor. Also, knowing everything about labor, they will not have that „fear of unknown”, in that way being breaked that vicious circle: fear – incapacity of relaxing – strong contractions – pain – fear... etc.

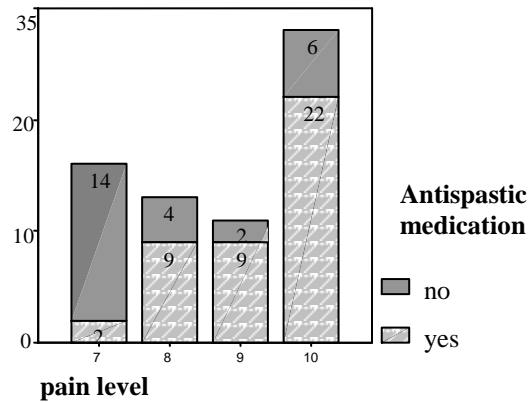
Pregnant women from experimental group scored their pain level in average with score 8, towards those from control group, who scored their pain level, in average with 9 score. ( $p = 0,000$ ) and delivery deployment, so that can be benefiting for both mother and child.

Chi<sup>2</sup> test of associaton (independency) indicate a strong association between the level of pain during labor and pain killers administration (diagram nr.2). The same association is present in case of antispastic medication, too. (diagram nr 3).

Pregnant women who had a decreased level of pain got significantly less pain killers administration ( $p 0,000$ ) towards pregnant women with a high level of pain and allot more painkillers administration. We may say the same thing about the antispastic medication administration, wich was less for experimental group, towards the control group.



**Diagram.nr.2 Association between level of pain and drug administration**



**Diagram.nr.3 Association between level of pain and drug administration**

**Table nr. 2 Comparison between experimental and control group regarding the characteristics of ordinal variables (mean± st. deviation, Kolmogorov-Smirnov)**

	Experimental group (n = 35)			Control group (n = 35)		
	Mean±Std. Dev.	K-S*	p	Mean±Std. Dev.	K-S*	p
<b>State anxiety (scor)</b>	44,83±7,24	0,234	<b>0,015</b>	46,77±6,16	0,155	<b>0,032</b>
<b>Trait anxiety (scor)</b>	44,80±9,89	0,211	<b>0,000</b>	50,06±7,53	0,191	<b>0,002</b>

This variables (state anxiety and trait anxiety) have a normal distribution ( $p > 0,05$ ). In that case, for data analisys, the inferential statistics will be used.

The comparison of initial data reveals that there are no significant differences between the characteristics of experimental group and control group, for anxiety as state and trait ( $p > 0,05$ ). This will allow us to compare the characteristics of both groups final data.

Regarding the initial level of anxiety as state and trait, with a scores mean of 44,83 for experimental group, respectively 46,77 for the control group (table nr.2), both groups have a mild level of anxiety, for anxiety as state and trait also (mild level - scor between 35-49).

After following the exercise program, this parameter was improved especially for experimentla group, as follows.

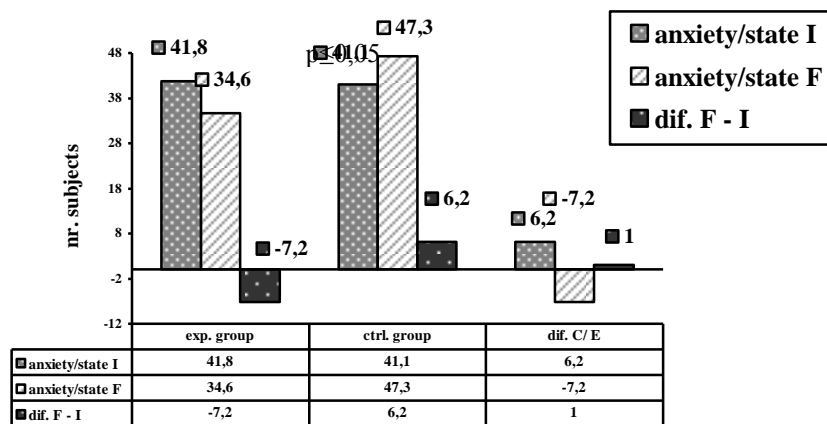


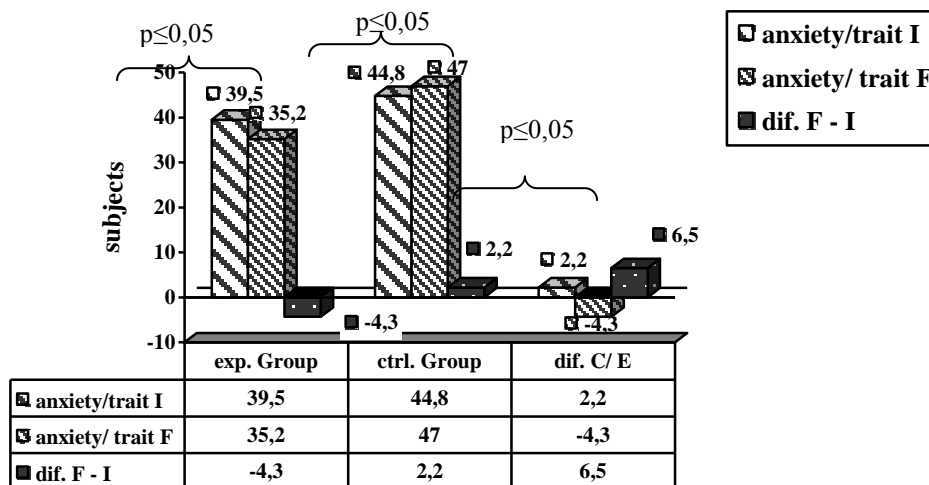
Diagram.n.4 Comparison the level of anxiety as state (mean): initial/ final/ difference(exp. group/ ctrl. group)

Intragroup analysis (sign test:  $0,021 \leq 0,05$  for anxiety as a state and  $0,002 \leq 0,05$  for anxiety as a trait) confirm the hypothesis that there is a significant difference between the anxiety level as a state and as a trait, from the beginning and the end of pregnancy, for both groups.

However, the anxiety scores of the experimental group enrolls in a low/ medium level of anxiety (as state: 34,6 and trait: 35,2). The anxiety scores of controll group

reaches the upper limit to a high level of anxiety (as state: 47,3 and trait: 47). This result highlight the importance of exercising in pregnancy.

The Wilcoxon Test for pears test specimens: initial/ final –  $0,007 \leq 52$  (critical value  $p = 0,05$ ) for anxiety as state and  $0,052 \leq 52$  confirm that there is a significant difference between the anxiety level from the beginning and the end of pregnancy, for both test specimens.



Graf.n.41 Anxiety as trait initial/ final/difference exp. group/ ctrl. group

The Mann-Whitney U Test for independent test specimens (experimental group/ control group) allow itragroup analysis. Has been observed that pregnant women from experimental group have a mean level of

anxiety at the end of pregnancy (mean score 34,6 for state and 35,2 for treat). Pregnant women from control group presents a tendency of increasing the anxiety level (mean score 47,3 for state and 47 for treat.).



There is a significant difference between anxiety level, both state and treat, of the experimental group and the one of the control group, at the end of pregnancy (Mann-Whitney U score  $15 \leq 23$ , critical value **Mann-Whitney U for p = 0,05**, for anxiety as state and  $17 \leq$  decât **23** for anxiety as trait).

The anxiety level is low for the experimental group (a difference of - **7,2p** and - **4,3p** for anxiety as state. Although these values are low, they are very important because are pointing the reducing of anxiety level from medium to low.

This will have a great impact on pregnant woman behavior during labor, because of the reducing of fear state, responsible for the incapacity of pregnant woman to relax and secondary on labor duration.

The anxiety level is significantly increased in control group (a difference of **6,2p** and **2,2p** for anxiety as treat) with a negative impact on labor development.

This finding allow us to assert that by having an active life and a program of exercising, pregnant woman will be able to maintain her anxiety level on a normal level, she will learn to relax and control her pain more efficient, in that she will be inn for delivery.

#### Discussion and conclusions

Maternity is a special condition of woman, due to the fetus development in the uterus and to the changes of maternal body, pursuant to the presence of conception product and to the necessity of assuring appropriate conditions, which will secure a normal development and delivery. It is necessary a screening of the most efficient means and methods of physical assistance, in order to

#### References

- CHERTOK, L., M. BONNAUD AND D. GRAHAM. 1969**, *Motherhood and Personality: Psychosomatic Aspects of Childbirth*. London: Tavistock Publications
- CHITULEA P. 2001**, *Orizontul psihosomatic și social al medicinei perinatale. Aspecte psihosomatice și culturale ale parturientei*, Editura Duran's, Oradea, pp.23
- ROBU, V. 2009**, *Test Anxiety Inventory (STAI) Standardization on a Group of Romanian High School Students*, Journal of School Psychology, issue 03, pp.58 - 47
- TEIXEIRA, J; MARTIN, D; PRENDIVILLE, O; GLOVER, V., 2005**, *The effects of acute relaxation on indices of anxiety during pregnancy*, Journal of Psychosomatic Obstetrics and Gynecology, 2005, vol. 26, n°4, ISSN 0167-482X, pp. 271-276
- MIU ANDREEA, 2008**, *Importanța exercițiului fizic în perioada sarcinii*, publicat în Săptămâna Medicală, 09. iulie, Etichete : Jurnal de sarcină
- Getting Along with Anxiety Treatment in Pregnancy*, <http://www.squidoo.com,ANXIETY/TREATMENT-IN-PREGNANCY>, reviewed on 10.08.2009

help the maternal body for an easier take over pregnancy, labor, delivery. After following the exercise program, the results are indicating an upgrading of testing parameters, on experimental group. This will have a positive impact on labor delivery for experimental group toward control group, showed by decreasing drugs administration.

Regarding labor parameters assessed, they were upgraded for experimental group, translated through the reduction of labor and delivery duration, the reduction of drugs administration, and reducing pain level.

Regarding the labor parameters, they showed an improvement in labor deployment to the pregnant women from experimental group, translated through decreasing of labor and delivery period, a decreasing of drugs administration (pain killers and antispastic medication) and a decreased level of pain.

Research data showed a significant association between the level of pain and painkillers and antispastic medication administration, and also between the length of labor and delivery and the state of fetus at birth. The anxiety level as state and treat, even if was medium at the beginning of labor, in case of two groups, have been reduced into the end of pregnancy, unlike control group, where anxiety level increased hereinafter.

This finding allow us to affirm that carrying of an active life style, by participating to a physical training and preparing for birth, pregnant woman will be able to maintain her anxiety in normal limits, she will learn to relax herself and to control her pain with more efficiency, which will allow her an active participation in the delivery process.

- MELZACK, R. 1973**, *The Puzzle of Pain*. Harmondsworth: Penguin Education
- TAYLOR, S.,2002**, *The Tending Instinct: Women, Men and the Biology of our Relationships*, New York: Times Books Henry Holt Company
- ENKIN, M., M. KEIRSE; CHALMERS I., 2000**, *A Guide to Effective Care in Pregnancy and Childbirth*, New York: Oxford University Press.
- CASS PAM, 2009**, *What happens during labour?*, <http://www.childbirthsolutions.com/articles/birth/whatlabor/index.php>
- SCHMID VERENA, 2009**, *The meaning and functions of labour pain*, <http://www.catpress.com/verenaschmid/quattordici.htm>
- LIEBERMAN ADRIENNE B., 1992**, *Easing labour pain: The Complete Guide to a More Comfortable & Rewarding Birth*, Editor: Harvard Common Press, 1992, ISBN 1558320431, 9781558320437
- RELIER, J.P. 1993**, *L'aimer Avant Qu'il Naisse*. Paris: Editions Robert Lafond
- BOSOMWORTH A, BETTANY-SALTIKOV J., 2006**, *Just take a deep breath... A review to compare the effects of spontaneous versus directed Valsalva pushing in the second stage of labour on maternal and fetal wellbeing*. MIDIRS Midwifery Digest 16(2): 157-165.

**DOWNE S, TRENT MIDWIFERY GROUP, YOUNG C, ET AL., 2004**, *The early pushing urge: practice and discourse*. In: *Downe S. ed. Normal childbirth: Evidence and debate* London: Churchill Livingstone: 121-40.

**SIMKIN, PENNY, 2001**, *The Birth Partner: Everything you need to know to help a woman through childbirth*, Second Ed., Ch. 4., Boston, The Harvard Common Press, ISBN 1-55832-195-0

**JAN NISSEL, RN, BS, 2009**, *Pain Rating Scale*, <http://www.health.com/health/library/mdp/0,,stp1310,00.html>

**JACQUES ERICA, 2010**, *Using Pain Scales to Effectively Communicate Pain Intensity*, By, About.com Guide, updated January 06, 20 10

**SPIELBERGER, C. D., GORSUCH, R.L., AND LUSHENE. R.E., 1970**, *Manual for the State-Trait Anxiety Inventory*. Palo Alto, CA: Consulting Psychologists Press