

# Gestational low back pain: prevalence and clinical presentations in a group of pregnant women\*

## *Lombalgia gestacional: prevalência e características clínicas em um grupo de gestantes*

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### ABSTRACT

**BACKGROUND AND OBJECTIVES:** Gestational low back pain is a major complaint during gestation being responsible for many negative impacts on the quality of life of pregnant women. This study aimed at determining the prevalence of types of low back pain and their presentations in pregnant women.

**METHOD:** This is a transversal descriptive study carried out with 21 pregnant women who attended a prenatal program in the city of Petrolina-PE. Patients were evaluated with specific tests to classify low back pain and have answered a questionnaire with socio-demographic and obstetric information. SPSS program's descriptive statistics and confidence interval were used for data analysis (CI<sub>95%</sub>).

**RESULTS:** From all evaluated pregnant women, 95.23% [CI<sub>95%</sub> 76.18 – 99.88] have reported low back pain during gestation, being that 71.43% [CI<sub>95%</sub> 47.82 – 88.72] had it previously to gestation. Most pregnant women, 57.14% [CI<sub>95%</sub> 34.02 – 78.18], have reported pain lasting for more than 60 minutes. The combination of low back pain and posterior pelvic pain was observed in 66.65% [CI<sub>95%</sub> 43.03 – 85.41] of patients and 28.58% [CI<sub>95%</sub> 11.28 – 52.18] had just low back pain.

**CONCLUSION:** There has been a high prevalence of low back pain among evaluated pregnant women, showing that the use of educational, preventive and rehabilitating measures is critical due to the negative impact of pregnancy-induced changes on quality of life of pregnant women. The inclusion of physical therapists as participants of Family Health Program actions with groups of pregnant women is critical to improve assistance practices.

**Keywords:** Low back pain, Pain, Physical therapy, Woman's health.

### RESUMO

**JUSTIFICATIVA E OBJETIVOS:** A lombalgia gestacional é uma das principais queixas durante a gestação, sendo responsável por inúmeras repercussões negativas na qualidade de vida da gestante. O objetivo deste estudo foi determinar a prevalência dos tipos de lombalgia e suas características em gestantes.

**MÉTODO:** Trata-se de estudo transversal descritivo realizado com 21 gestantes que realizavam consulta pré-natal no município de Petrolina-PE. Foi realizado exame físico composto por testes específicos para classificação da lombalgia e aplicado um questionário que abordava informações sociodemográficas e obstétricas. Para análise dos dados, foi aplicada estatística descritiva no programa SPSS e intervalo de confiança (IC<sub>95%</sub>).

**RESULTADOS:** Das gestantes analisadas 95,23% [IC<sub>95%</sub> 76,18 – 99,88] relataram dor lombar durante a gestação, sendo que 71,43% [IC<sub>95%</sub> 47,82 – 88,72] apresentavam-na previamente à gestação. A maioria das gestantes, 57,14% [IC<sub>95%</sub> 34,02 – 78,18], relatou sentir dor com duração superior a 60 minutos. A combinação de dor lombar com dor pélvica posterior foi verificada em 66,65% [IC<sub>95%</sub> 43,03 – 85,41] das gestantes, e 28,58% [IC<sub>95%</sub> 11,28 – 52,18] apresentaram somente dor lombar.

**CONCLUSÃO:** Observou-se alta prevalência de lombalgia nas gestantes analisadas, demonstrando ser fundamental o emprego de medidas educativas, preventivas e reabilitadoras, devido ao impacto negativo que as alterações advindas da gravidez podem ocasionar na qualidade de vida das gestantes. A inclusão do fisioterapeuta como participante das ações do Programa de Saúde da Família com atuação em grupos de gestantes é fundamental para melhora das práticas assistenciais.

**Descritores:** Dor, Dor lombar, Fisioterapia, Saúde da mulher.

### INTRODUCTION

Gestational low back pain is a major complaint during gestation, being considered a multifactorial symptom<sup>1</sup> affecting the lumbar region which may irradiate to lower limbs<sup>2</sup>.

Its etiology is not totally clear and one of the most probable causes for it would be increased uterine weight, increased lordosis, center of gravity changes, muscles laxity and hormonal, mechanical and vascular changes<sup>3</sup>. Other possible causes would be posture changes, pelvic insufficiency and direct pressure of the fetus and gravid uterus on nervous roots of the lumbosacral spine<sup>4</sup>. Added to these factors, low back pain

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previous to gestation is also a major risk factor for gestational low back pain<sup>5</sup>.

With regard to clinical classification, low back pain is based on three different conditions: lumbar pain, posterior pelvic pain or the combination of both<sup>1</sup>. Lumbar pain would be a symptom present before gestation, intensified during this period with decreased lumbar region mobility at clinical evaluation and pain at palpation of lumbar paraspinal muscles<sup>2</sup>.

Posterior pelvic pain would be a low back pain characteristic of gestation, intermittent, with irradiation to gluteus and lower limbs, causing pain and movement blockade during gait and positive posterior pelvic pain provocation test<sup>2</sup>.

Approximately 50% of pregnant women have low back pain during gestation<sup>1</sup>, being this symptom responsible for many negative repercussions in their quality of life<sup>2</sup>, causing absenteeism and decreased productivity and generating major socioeconomic impact<sup>6</sup>.

Nevertheless, low back pain is still considered inherent to gestation, being negligible the attention given by health professionals to this symptom<sup>1,2,7</sup>. So, to establish effective preventive and therapeutic measures for its relief, it is critical that physical therapists know how to clinically differentiate it, since these are conditions requiring different approaches<sup>1</sup>. Based on the above and due to the clinical relevance of gestational low back pain for its repercussions on pregnant women's lives and its high socioeconomic impact, this study aimed at determining the prevalence of types of low back pain in a group of pregnant women.

## METHOD

This was a transversal descriptive study with a convenience sample of 21 pregnant women between the first and third gestational trimester who participated in a prenatal program of the Health Center of Vila Eduardo, located in the city of Petrolina, PE.

Data were collected by the laboratory of Physical Therapy, University of Pernambuco, Petrolina Campus, between March and July 2010, by interviews and individualized physical evaluation carried out by two previously trained researchers.

Inclusion criteria were volunteers with low risk gestation; age above 15 years; literate; speaking and understanding Portuguese; and oriented in time and space. Exclusion criteria were overweight or obesity, history of lower limbs and/or spinal fracture, injury or surgery, presence of degenerative joint diseases, genitourinary disease and amputations or neuromuscular disorders.

All volunteers were informed about research procedures and have signed the Free and Informed Consent Term (FICT), according to resolution 196/96 of the National Health Council.

### Procedures

Initially, patients were briefly familiarized with the research with the presentation of experiment objectives and routine and have signed the FICT.

Then, current weight and height were evaluated with an an-

thropometric scale, blood pressure was measured and patients were individually interviewed with a structured questionnaire developed by the researchers. The questionnaire was based on scientific literature on the subject and has addressed information about current and pre-gestation sociodemographic and obstetric variables.

For pregnant women reporting low back pain, specific questions were asked about pain frequency, duration and period, practice of physical activities, activities worsening or improving pain and pelvic "block" during gait.

Then, physical evaluation was carried out by palpation of lumbar muscles with patients sitting on a bench with adjustable height. During mobility and lumbar pain provocation test, patients were asked to remain in orthostatic position and to perform flexion, extension, lateralization and rotation of the body, and were asked about presence of pain or discomfort during such movements.

The following specific tests were carried out to check the presence of low back pain and, if so, to classify the type of pain:

- Posterior pelvic pain provocation (PPP): patients were positioned in the supine position with the hip joint of the side to be tested flexed to 90°. The investigator made manual pressure on the knee in the femoral axial sense. Test was considered positive when there was pain complaint in the sacroiliac region of the tested side<sup>8</sup>. This test is a major clinical indicator of gestational low back pain, and has approximately 80% sensitivity and specificity<sup>8,9</sup>.

- Passive straight leg raising test: patient was positioned in the supine position and hip joint was passively flexed with extension of the knee of the side to be tested. When patient reported pain, the investigator would slowly lower her leg and then carried out ankle dorsiflexion aiming at stretching the sciatic nerve and reproducing sciatic pain. Test was considered positive when leg raising was painful, indicating sciatic nerve involvement<sup>8,9</sup>.

- Patrick: patient was positioned in the supine position with the hip joint of the side to be tested positioned in external rotation, abduction and mild flexion, and ipsilateral knee flexed to 90°. The investigator made manual pressure on the knee toward the stretcher. Test was positive when there was pain complaint in the sacroiliac region of the tested side<sup>8</sup>.

- Piedallu: Volunteers remained sitting on a bench with abducted legs and knees flexed to 90°. The investigator would locate by palpation the posterior superior iliac spines (PSIS) and asked patients to flex the body; then the alignment between PSIS was evaluated. Test was considered positive when there was unevenness between PSIS<sup>8</sup>.

All tests in supine position had a standardized maximum duration of 3 minutes, thus avoiding any discomfort related to great vessels compression by the gravid uterus.

### Statistical analysis

Collected data were compiled in an Excel database for further quantitative data analysis. Data were processed and analyzed with the Statistical Package for the Social Sciences (SPSS) program version 16, by double typing. WINPEPI program

was used to calculate the confidence interval (CI<sub>95%</sub>). Descriptive statistical analysis was used for data presentation. Continuous variables are shown as central and dispersion trend measures, while categorical variables are shown as absolute and relative frequencies.

This study was approved by the Research Ethics Committee, University of Pernambuco, under registration CEP/UPE: 251/2009.

**RESULTS**

Participated in this study 21 pregnant women with mean age of 23.09 ± 4.06 years. The number of pregnant women in each gestation trimester was equivalent, that is, there were seven pregnant women for each of the three gestational trimesters.

With regard to anthropometric data, table 1 shows means and standard-deviations of descriptive variables: age, pre-gestational weight, gestational weight, height and body mass index (BMI).

Table 1 – Distribution of evaluated pregnant women according to anthropometric characteristics. Petrolina-PE.

Characteristics	Mean ± SD
Age (years)	23.09 ± 4.06
Pre-gestational weight (kg)	54.65 ± 6.71
Gestational weight (kg)	62.14 ± 9.34
Height (m)	1.59 ± 0.06
Body mass index (kg/m <sup>2</sup> )	21.65 ± 2.56

SD = standard deviation.

From evaluated patients, (20) 95.23% [CI<sub>95%</sub> 76.18 – 99.88] have reported low back pain during gestation, being that (15) 71.43% [CI<sub>95%</sub> 47.82 – 88.72] have reported this pain previously to gestation. Most pregnant women, (12) 57.14% [CI<sub>95%</sub> 34.02 – 78.18], reported pain lasting more than 60 minutes, while (8) 38.09% [CI<sub>95%</sub> 18.11 – 61.56] have reported pain lasting less than 60 minutes.

As to pain frequency, (11) 52.39% [CI<sub>95%</sub> 29.78 – 74.29] of volunteers have stated constant pain and (9) 42.84% [CI<sub>95%</sub> 21.82 – 65.98] intermittent pain. As to the period with higher intensity, (4) 19.05% [CI<sub>95%</sub> 5.45 – 41.91] have referred the morning as the predominant period. The afternoon period was reported by (8) 38.09% [CI<sub>95%</sub> 18.11 – 61.56] and the same number of pregnant women has referred the night. Primary activities triggering or exacerbating low back pain were walking or sitting, corresponding to (12) 57.14% [CI<sub>95%</sub> 34.02 – 78.18] of cases. Most pregnant women, (9) 42.84% [CI<sub>95%</sub> 21.82 – 65.98] have reported that pain would decrease when lying down and the same prevalence has presented movement block episodes during gait. No patient has reported practicing physical activity during gestation.

At physical evaluation, (15) 76.20% [CI<sub>95%</sub> 52.83 – 91.78] of patients did not refer pain at lumbar paraspinal region palpation. During lumbar pain provocation test, it was observed that (7) 33.32% [CI<sub>95%</sub> 14.59 – 56.97] of patients have re-

ported pain during flexion and (9) 42.84% [CI<sub>95%</sub> 21.82 – 65.98] during extension. No patient had decreased lumbar mobility, in spite of the high frequency of pregnant women with low back pain.

With regard to specific tests, table 2 shows the results of PPP, passive straight leg raise and Patrick tests. As to Piedallu test, (9) 42.84% [CI<sub>95%</sub> 21.82 – 65.98] of volunteers had positive results suggesting the presence of sacroiliac disorder.

Table 2 – Absolute and relative frequency of results of specific tests of evaluated pregnant women. Petrolina-PE.

Specific Tests	Negative n (%)	Positive Unilateral n (%)	Positive Bilateral n (%)
PPP	33.32% (7)	47.63% (10)	19.05% (4)
Passive str. leg raise	80.95% (17)	4.77% (1)	14.28% (3)
Patrick	28.58% (6)	61.90% (13)	9.52% (2)

PPP = posterior pelvic pain provocation.

As from questionnaire information and specific tests results, it was possible to classify the type of gestational low back pain, being observed that (14) 66.65% [CI<sub>95%</sub> 43.03 – 85.41] of pregnant women had combination of lumbar pain and posterior pelvic pain, (6) 28.58% [CI<sub>95%</sub> 11.28 – 52.18] lumbar pain only and no pregnant woman had posterior pelvic pain alone.

**DISCUSSION**

During pregnancy there is pelvic joints relaxation due to hormonal changes, especially due to the action of relaxin, responsible for ligament laxity<sup>10</sup>. Due to increased mobility of such joints, there are increasing demands on stabilizing ligaments and muscles, which may induce pain if such needs are not met<sup>10</sup>.

There has been high prevalence of gestational low back pain since 93.23% of patients referred pain, and this is in line with other studies<sup>5</sup>.

Most pregnant women in this study have reported afternoon and night as predominant periods of pain lasting more than 60 minutes. It is believed that the prevalence of pain complaints in these periods is related to musculoskeletal overload caused by increased weight<sup>11</sup>, maintenance of orthostatic and sitting positions<sup>5</sup>, and by the performance of activities throughout the day, which would be responsible for further tiredness and fatigue in these periods. Joint and sacroiliac instability caused by ligament laxity would also be a possible cause of pain during these periods<sup>11</sup>.

Similar data to our study were found by Santos and Gallo<sup>12</sup>, who observed that most pregnant women reported low back pain especially in the afternoon with worsening of symptoms at night, being observed that 88% of pregnant women had pain lasting one hour or more.

In our study, 71.43% of patients reported low back pain even before gestation, fact that was already expected since low back pain previous to gestation is a risk factor for the symptom during gestation<sup>5,12</sup>.

As to low back pain classification, it was observed that 66.65% of patients had a combination of low back pain and posterior pelvic pain and 28.58% low back pain alone. Still, 19.05% of patients had positive results (unilateral and bilateral) for the passive straight leg raise test, indicating possible sciatic nerve compression.

Positive response to PPP and passive straight leg raise test is associated to incapacity at late gestation, being observed less functional impairment in cases of low back pain as compared to posterior pelvic pain, and more severe incapacities in pregnant women with the combination of both types<sup>13</sup>.

A previous study<sup>14</sup> has found 5% prevalence of low back pain, 52% of pelvic pain and 25% of the combination of both in pregnant women. However, it has to be stressed that the literature has a diversity of terms and diagnostic criteria to describe gestational low back pain, which are probably responsible for different prevalence rates found for the subject. A limitation of this study was the lack of sample size calculation, the small sample size and the non evaluation of functional impairment associated to the type of low back pain, remaining as a suggestion for further studies the evaluation of these variables and the inclusion of larger samples. It was also found that it is critical to have new studies about the subject aiming at evaluating the efficacy of early physical therapy interventions for gestational low back pain.

This study has also observed the need for more attention of health professionals to gestation-induced postural changes, due to the implications that such changes may have in the quality of life of pregnant women.

It was also observed in this study that in spite of the high prevalence of gestational low back pain, no participant has reported practicing physical activities, fact which justifies the integration of physical therapists to the Family Health Support Nucleus (NASF).

The inclusion of physical therapists in NASF prenatal program will contribute for the strengthening of Family Health Strategy actions, expanding Basic Health Attention.

Regular practice of physical activities, body awareness exercises, relaxation techniques, educational measures and postural orientation during daily activities are critical for the prevention, decrease or elimination of gestational low back pain<sup>15</sup>.

In this sense, physical therapists may develop individual and collective activities for pregnant women groups, based on the adoption of new behaviors and changes in lifestyle. So, the

inclusion of such professionals will go beyond rehabilitation assistance, by integrating to their field of action the prevention of diseases, health promotion and recovery, taking into consideration social, economic, cultural and environmental aspects which may interfere with the health-disease process.

## FINAL REMARKS

There has been a high prevalence of gestational low back pain in the group of studied pregnant women and most volunteers had a combination of low back pain and posterior pelvic pain. There has been predominance of pain lasting more than 60 minutes in the afternoon and at night. Face to what has been exposed, it is critical to use educational, preventive and rehabilitating measures for this group, due to the negative impact that gestation-induced changes may have in the quality of life of pregnant women. The inclusion of physical therapists as participants of NASF actions contributes to Basic Health Attention approaches, meeting the goals of the program and improving not only adopted assistance practices, but also the quality of life of pregnant women.

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