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# Physiotherapy in gestational health: an evaluation of the demands identified in primary care

Fisioterapia en salud gestacional: una evaluación de las demandas identificadas en atención primaria

Fisioterapia na saúde gestacional: uma avaliação das demandas identificadas na atenção primária

## ABSTRACT

The present work addresses physiotherapeutic obstetric assistance in primary care units in the city of Barbacena / mg. OBJECTIVE: to identify changes related to the gestational period that may guide the physiotherapist's performance in the context of primary care, specifically to analyze the postural changes resulting from this demand, to discuss the patterns and the presence of pain in pregnant women and to analyze the factors that influence the quality of life. Of pregnant women. METHODS: the research has a descriptive, exploratory, transversal and quantitative character, it was carried out in a uaps in the city of Barbacena mg, for the period from december 14, 2017 to january 11, 2018. Seven pregnant women participated in the study. Physiotherapeutic evaluation, biophotogrammetry, was, the nordic musculoskeletal discomfort questionnaire and the sf-36 quality of life questionnaire were applied. The data were tabulated in excel 2007 and analyzed using descriptive statistics. RESULTS: the mean age was  $25.28 \pm 6.45$  years, gestation between  $20.14 \pm 6.36$  weeks. The impaired quality of life domains are based on limitation due to emotional aspects and pain, incidence in hands / wrists and lower back. In postural assessment, the main disorders occurred in the head segments; shoulders; lumbar spine; iliac crests; pelvis; knees and heel. CONCLUSION: pain was present mainly in the upper limbs, followed by the lumbar region. Being a limiting factor of activities of daily living, causing overload in the musculoskeletal structures. The main limitations of this study were in relation to the use of resources, which were not offered by phc, the small sample size and the low adherence of pregnant women to the pregnant group of the visited ubs.

**DESCRIPTORS:** Posture; Pregnancy; Physiotherapy; Primary Health Care.

## RESUMEN

El presente trabajo trata sobre la asistencia fisioterapéutica obstétrica en las unidades de atención primaria de la ciudad de Barbacena / mg. OBJETIVO: identificar cambios relacionados con el período gestacional que puedan orientar el desempeño del fisioterapeuta en el contexto de la atención primaria, específicamente analizar los cambios posturales resultantes de esta demanda, discutir los patrones y la presencia de dolor en la gestante y analizar los factores que influyen en la calidad de vida de las mujeres embarazadas. MÉTODOS: la investigación tiene un carácter descriptivo, exploratorio, transversal y cuantitativo, se realizó en una uaps de la ciudad de Barbacena mg, para el período del 14 de diciembre de 2017 al 11 de enero de 2018. Participaron del estudio siete mujeres embarazadas. Se aplicó evaluación fisioterapéutica, biofotogrametría, eva, el cuestionario nórdico de malestar musculoesquelético y el cuestionario de calidad de vida sf-36. Los datos se tabularon en excel 2007 y se analizaron mediante estadística descriptiva. RESULTADOS: la edad media fue de  $25,28 \pm 6,45$  años, gestación entre  $20,14 \pm 6,36$  semanas. Los dominios de la calidad de vida deteriorada se basan en la limitación debida a aspectos emocionales y dolor, incidencia en manos / muñecas y espalda baja. En la evaluación postural, los principales trastornos ocurrieron en los segmentos de la cabeza; espalda; espina lumbar; crestas ilíacas; pelvis; rodillas y talón. CONCLUSIÓN: el dolor se presentó principalmente en los miembros superiores, seguido de la región lumbar. Siendo un factor limitante de las actividades de la vida diaria, provocando sobrecarga en las estructuras musculoesqueléticas. Las principales limitaciones de este estudio fueron en relación al uso de recursos, que no fueron ofrecidos por la aps, el pequeño tamaño muestral y la baja adherencia de las gestantes al grupo de gestantes de la ubs visitada.

**DESCRIPTORES:** Postura; El Embarazo; Fisioterapia; Primeros Auxilios.

## RESUMO

O presente trabalho aborda assistência obstétrica fisioterapêutica em unidades de atenção primária da cidade de Barbacena / MG. OBJETIVO: Identificar alterações relacionadas ao período gestacional que possam nortear a atuação do fisioterapeuta no contexto de atenção primária, especificamente analisar as alterações posturais decorrentes desta demanda, discutir os padrões e a presença de dor nas gestantes e analisar os fatores que influenciam na qualidade de vida das gestantes. MÉTODOS: A pesquisa tem caráter descritivo, exploratório, transversal e quantitativo, foi realizada em uma UAPS da cidade de Barbacena

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MG, pelo período de 14 de dezembro de 2017 a 11 de janeiro de 2018. Sete gestantes participaram do estudo. Realizou-se avaliação fisioterapêutica, biofotogrametria, aplicou-se a EVA, o Questionário Nórdico de Desconfortos Musculoesqueléticos e o Questionário de Qualidade de Vida SF-36. Os dados foram tabulados no Excel 2007 e analisados com estatística descritiva. RESULTADOS: A média de idade foi de  $25,28 \pm 6,45$  anos, gestação entre  $20,14 \pm 6,36$  semanas. Os domínios da qualidade de vida prejudicados baseiam-se na limitação por aspecto emocional e dor, incidência em mãos/punhos e região lombar. Na avaliação postural, os principais distúrbios ocorreram nos segmentos de cabeça; ombros; coluna lombar; cristas ilíacas; pelve; joelhos e calcâneo. CONCLUSÃO: A dor esteve presente principalmente em membros superiores, seguido pela região lombar. Sendo um fator limitante das atividades de vida diária, causando sobrecarga nas estruturas musculoesqueléticas. As principais limitações deste estudo foram em relação ao uso dos recursos, que não foram oferecidos pela APS, o número pequeno da amostra e a baixa adesão das gestantes ao grupo de gestante da UBS visitada.

**DESCRIPTORIOS:** Postura; Gravidez; Fisioterapia; Atenção Primária à Saúde.

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## INTRODUCTION

In the 90's, through the foundations of the Federal Constitution of 1988 and the regulation of the Unified Health System (SUS - Sistema único de saúde),<sup>1</sup> the Family Health Program (PSF) was created, currently called the Family Health Strategy (ESF), with the purpose of collaborating with the organization of the SUS and the municipalization of health.

The ESF prioritizes preventive, promotion and health recovery actions for people, in an integral and continuous way, expands the coverage of primary care and encourages the promotion of family health, improving the quality of life of the population in general.<sup>2</sup>

With the implementation of the ESF, the possibility emerged of multidisciplinary health care that would stimulate the role of physical therapists in primary care, weakening the concept of health restricted to rehabilitation, as it includes disea-

se prevention, health promotion and the pursuit of quality of life for users.<sup>3,4,5</sup>

Of the population groups covered by the actions described by the National Primary Care Policy, the maternal-infant segment is one of the objects of physical therapy intervention. Specifically in the field of obstetrics, the physiotherapist has occupied an important position in the health team, helping women to adapt to bodily changes during pregnancy and the puerperium. Pregnancy, and the events related to it, are marked by anatomical, physiological and biomechanical changes in the woman's body, in addition to hormonal, metabolic, cardiovascular, respiratory, integumentary, nervous, gastrointestinal and urogenital changes.<sup>6,7,8</sup>

Although they are part of the gestational evolution, the physiological changes responsible for maintaining fetal development end up having an impact on the pregnant woman's posture, which can cause pain and discomfort. These

adaptations can affect the quality of life of these women and influence activities of daily living, sleep quality, mood, social life and leisure.<sup>9</sup>

Inserted in the multidisciplinary team of primary care, the physical therapist can contribute to the identification of factors that predispose to pain, decreased quality of life and limitation of activities of daily living.<sup>10</sup>

From this perspective, this study questions what are the most relevant physiotherapeutic demands for the development of gestational health promotion strategies in the context of primary health care. It is hypothesized that musculoskeletal changes, such as postural changes, which occur in a woman's body during the gestational period predispose to the development of postural changes in pregnant women that impact different domains of their lives and their family/communal dynamics. Thus, the demands related to poor posture and body misalignment can cause discomfort,

pain, 3 in addition to other negative psychosocial manifestations.

Thus, the objective of this research was to identify changes related to the gestational period that can guide the performance of physical therapists in the context of primary care, specifically to analyze the postural changes resulting from this demand, to discuss the patterns and the presence of pain in pregnant women and to analyze the factors that influence the quality of life of pregnant women who are users of a Primary Health Care Unit in the city of Barbacena - MG.

## METHODS

The research, descriptive, exploratory, transversal and quantitative, was carried out in a Primary Health Care Unit - UAPS in the city of Barbacena - MG. At the unit, it is possible to make appointments for the areas of General Practice, Pediatrics and Gynecology and vaccinations. It is linked to government programs such as the ESF (Family Health Strategy) and the NASF (Family Health Support Center). The physiotherapist is included in the actions in health by the NASF team.

Pregnant women accompanied by the Family Health team, from the UAPS in question, were evaluated according to the inclusion criteria of regular prenatal care, pregnancy in the second gestational trimester, age range from 10 to 49 years. The study excluded women at high risk or very high gestational risk according to stratification by the Ministry of Health, as well as those with diagnoses of musculoskeletal disorders in the acute phase or undergoing chronic rehabilitation.

According to the USCONSOLIDATED TERRITORY REGISTRATION REPORT<sup>7</sup> of eSUS AB, 2461 people are enrolled in the UAPS territory under study, of which 1191 are women, 807 of which are of childbearing age and 10 are in the gestational period. As a criterion for the quantification of women of childbearing age, the age ranges for females used by the DATASUS Information Department and eSUS AB were used.

The formula<sup>11,12,13</sup> used to calculate the number of volunteers in the study was:

$$n = \frac{Z_{\alpha/2}^2 \cdot p \cdot q}{E^2}$$

In the territory, the proportion "p" is 0,012, while "q" (q=1-p) is 0,988. Sample "n" was considered with a confidence level of 90% ( $Z_{\alpha/2} = 1,645$ ), with an "E" value of 10% (0,1). Using the formula described, it is considered that the study sample must be at least 4 volunteers (n=3,208). However, given the ease of contact with pregnant women and their pregnancies compatible with the inclusion and exclusion criteria, it was possible to collect data from seven of the ten pregnant women using the UAPS.

The research was approved by the Ethics and Research Committee of the Universidade Presidente Antônio Carlos under the opinion number 2.393.724 and carried out in one of the UAPS in Barbacena - MG.

Each participant agreed with the Informed Consent Form, authorizing the use of their data, images, evaluation and reassessment. In the case of underage people, the Assent Term was used.

The first stage of data collection was established by clarifying the ethical aspects of research to pregnant women, followed by physical therapy consultation, musculoskeletal postural assessment, quantification of symptoms and quality of life of pregnant women.

During the physical therapy consultation, an identification form of the pregnant woman was filled out, containing personal and obstetric data, gestational and family history, use of medications and complementary exams.

The postural assessment was carried out with the visual analysis of the researchers with the aid of a plumb line and analysis in the SAPO software, and the quality of life was assessed using the SF-36 questionnaire. Pain analysis was performed using the visual analogue scale - VAS, while the assessment of musculoskeletal discomfort was performed using the Nordic Muscu-

loskeletal Questionnaire for Musculoskeletal Disorders.

The reports obtained from the collected data were computed in the Microsoft Office Excel 2007 program and analyzed using descriptive statistics.

## RESULTS AND DISCUSSION

The seven volunteers were evaluated between 12/14/2017 and 01/18/2018, had a mean of  $25,28 \pm 6,45$  years (minimum 15 and maximum 33 years), gestational age of  $20,14 \pm 6,36$  weeks and six of them were in their first pregnancy.

Five of the volunteers reported pain, of which the highest incidence sites were hands/wrists (57%) and lumbar region (43%), which are compatible with the extensive literature in the field of Obstetric Physiotherapy, which makes this data a relevant aspect to be tracked in the gestational physiotherapeutic evaluation in the context of primary care.

Barbosa et. al.<sup>14</sup> verified the correlation between weight gain and low back pain intensity in pregnant women, so that the increase in low back pain intensity was obviously more significant in the 9th gestational month. Similarly, Carvalho et. al.<sup>15</sup> in a study with low-risk pregnant women, they concluded that low back pain, in addition to being the most common complaint among the 97 study volunteers, has specific characteristics and is more frequent in the second trimester of pregnancy.

In this present study, it was observed that the aspect of pain was more intense from the second trimester (from the 13th to the 40th weeks), considering that the sample itself had a mean gestational age above 20 weeks. This characteristic leads us to suggest that it would be interesting to observe the conformation of the pain aspect in different gestational periods if the domain of pain is the object of intervention by the physiotherapist, especially in the context of group activities.

In the seven days prior to data collection, the neck, elbows and lumbar regions showed the most symptoms according to

the Nordic Musculoskeletal Discomfort questionnaire. This data does not find resonance in the literature, since there is a certain scarcity of studies that correlate the Nordic Musculoskeletal Questionnaire to disorders that occur during the gestational period, specifically. It should also be noted that the main complaints identified by this instrument were allocated in the last 12 months, that is, partially prior to the gestational period.

Complaints that are particularly related to pregnancy are covered only by the symptomatic window of the last 7 days, which suggests a limitation in the use of this instrument in the maternal context to be considered by the professional who wishes to implement a proposal for gestational promotion.

Regarding the predominant postural changes among pregnant women, the data showed: (1) in the frontal plane 85,72% (n=6) presented lateral inclination to the left (L) or to the right, knee R and E in genovaro (both 57,14%, n=4), elevation of shoulder E (71,43%, n=5), elevation of EIAS E and D (57,14%, 28,57%, respectively); (2) in the posterior evaluation: abduction of the left scapula (71,43%, n=5), right calcaneus in genu valgum (71,43%, n=5); (3) in the lateral evaluation D and E: head forward (85,71%, n=6), knee hyperextension D (57,14%, n=4) trunk extension (85,71%) and pelvic anteversion (71,43%).

The information obtained allowed to identify lumbar hyperlordosis as a postural change that, according to studies such as those by Pantoja and Sousa,<sup>16</sup> may be associated with low back pain. For the authors, low back pain affects around 48% to 56% of pregnancies between the 5th and 7th month of the gestational period, limiting the performance of Activities of Daily Living.

The study by Mota et al.<sup>17</sup> evaluated the postural changes in 10 pregnant women in the third trimester, through biophotogrammetry. The average age of women was 20±5,1 years, 60% of them were single, 40% worked at home and the average BMI was 23,9±4,9 kg/m<sup>2</sup>. In the evaluation in anterior view, 80% of the sample present

ted head rotation to the left, all presented head rotation and lateralization, predominantly 60% with left side elevation; 60% had asymmetry between the anteroposterior iliac spines, mainly affecting the right side (70%). The authors concluded that the postural changes observed are due to physiological adaptations characteristic of the gestational period.

**It may also be associated with the distension of the shoulder girdle, which promotes traction of the ulnar and median nerves, and these changes can suffer postpartum damage, considering the overload of this segment in the postpartum period, due to breastfeeding and care in general with the newborn.**

Comparing the current study with that of Mota et al.,<sup>17</sup> the mean age of women was higher (25.28 ± 6.45 years), marital status (71% single) and BMI (24.37 kg/

m<sup>2</sup>) were also higher, but the total sample was lower (7 pregnant women). In the postural assessment, the main disturbances occurred in relation to the positioning of the head, shoulders, spine, iliac crests, pelvis, knees and calcaneus.

The marked pelvic alterations deserve attention. It is important to consider that these aspects can appear during the gestational period or can be intensified by it, in case of a previous existence.<sup>18</sup> This fact stems from the pelvic adaptation mechanisms themselves, during the gestational period, which involves a cascade of hormonal changes that stimulate physiological biomechanical adjustments in this segment.<sup>18</sup>

This characteristic highlights the relevance of physical therapists in primary care to exercise care, effectively longitudinal, that allows a prior recognition of the user's postural status, or, what seems more plausible, the monitoring of this change in the puerperium to investigate the need for follow-up particularized to the woman.

Postural changes in upper limbs, according to Panjota and Souza<sup>16</sup> occur mainly in the last trimester, and include signs and symptoms such as pain, paresthesia, and muscle weakness. This is due to the increase in cervical lordosis and concomitant neck flexion. It may also be associated with the distension of the shoulder girdle, which promotes traction of the ulnar and median nerves, and these changes can suffer postpartum damage, considering the overload of this segment in the postpartum period, due to breastfeeding and care in general with the newborn.

Regarding the SF-36 questionnaire, the most altered domains were limitations due to emotional aspects and pain, while the best aspects of the health/life of pregnant women were related to the items general health and social aspects.

Santos et al.<sup>19</sup> correlated the complaint of gestational low back pain with the impact on activities of daily living using the SF-36 quality of life questionnaire. Its sample consisted of two groups of pregnant women, dividing them into first (GI) and second (GII) gestational trimester, in which the most negatively affected do-

mains were vitality in GI and limitation due to emotional aspects in the other GII group. The authors concluded that low back pain mainly affects young and primigravid women and interferes with vitality and emotional aspects, impacting daily activities.

Macedo et.al.<sup>20</sup> evaluated the quality of life of pregnant women in different gestational periods through the SF-36 questionnaire and found that, in general, the quality of life of women assumes values inversely proportional to the gestational period in which they are, so that the higher the longer the pregnancy period, the tendency to lower quality of life. In their study, the categories with the worst values were limitations due to physical aspects and general health status, while in the present study, it was emotional aspects (52) and vitality (60). The highest values reported by the authors were limitations due to emotional aspects and functional capacity, representing, respectively, the highest values, 100 and 95, unlike the present study, where general health (82) and social aspects (73) had the highest values.

Small changes in vital parameters were found during data collection from pregnant women, some compatible with hemodynamic changes during the gestational period. 18 Mean systolic blood pressure was 99 mmHg and mean diastolic pressure was 73 mmHg. Mean heart rate was 83 bpm, oxygen saturation 97% and respiratory rate 17,86 bpm.

Only one pregnant woman reported dieting and four (57%) performed some type of physical activity. The mean BMI of the sample was 24,37 kg/m<sup>2</sup> and no patient reported smoking and/or alcohol consumption.

Carvalhes et.al.<sup>21</sup> related the level of physical activity in low-risk pregnant women and associated risk factors and found that the majority did not perform any type of physical activity in their free time, only 27,0% performed walking. Physical activity during pregnancy is seen not only as a way to prevent pregnancy complications, such as gestational diabetes (which affects about 4% of pregnant women), high blood pressure and excessive weight

gain, but also as a stimulus to normal delivery. According to the authors, having performed more births and excessive pre-pregnancy weight gain were considered factors that stimulated the practice of physical activity.

## **The physiotherapist professional is an important member in the adherence of pregnant women to prenatal care in primary care, being responsible for the prevention and correction of postural deviations, as well as guidance and coordination for the development of educational content.**

Santos and Gallo<sup>22</sup> emphasize that the BMI is a relevant fact, since it is associated with the development of low back pain in pregnant women, as well as the factors of age and previous low back pain.

Regarding sociocultural aspects, five volunteers were single, only two had completed higher education and one was underage.

Two volunteers (29%) reported urinary tract incontinence, but they were already undergoing clinical treatment, the others did not present any complications during pregnancy.

Carvalho and Caccia-Bava<sup>23</sup> emphasize that the population, due to sociocultural aspects, often only resorts to Physiotherapy for needs considered urgent and immediate. This fact devalues the effort and investment in health promotion actions. In this sense, the lack of knowledge about the role of the physiotherapist is a reason for limiting community access to the Physiotherapy service in the ESF, including in the care of pregnant women.

### **CONCLUSION**

Pain was mainly present in the upper limbs, followed by the lumbar region and occurred in younger and primigravid women, with no reports of changes in daily activities.

It was also observed in this study that the main damages to the quality of life of pregnant women are related to emotional aspects and vitality. The physiotherapist professional is an important member in the adherence of pregnant women to prenatal care in primary care, being responsible for the prevention and correction of postural deviations, as well as guidance and coordination for the development of educational content.

Regarding the resources used in this research, the SAPO<sup>®</sup> software demonstrated efficacy for postural assessment, but there is little literature in relation to reference values for musculoskeletal changes in pregnant women. The SF-36 questionnaire proved to be an important tool to assess the quality of life of pregnant women. As for the Nordic musculoskeletal questionnaire, its application in pregnant women was not found in the literature. However, it becomes effective to identify if the pain and discomfort presented occurred before the gestational period.

The main causes or limitations of this study were related to the use of high resources, which were not offered by the

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PHC, the small sample size and the low adherence of pregnant women to the group of pregnant women at the UBS vi-

sited. It is suggested to monitor a group of pregnant women who start in the first weeks of pregnancy and which can pro-

vide a more accurate diagnosis of musculoskeletal changes and consequent postural changes. ■

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