

ORIGINAL ARTICLE

Prevalence of Pregnancy Related Low Back Pain in Third Trimester and Its Impact on Quality of Life and Physical Limitation

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ABSTRACT

Objective: The objective of this study was to find out the prevalence of pregnancy related low back pain in the third trimester and evaluate its impact on the quality of life, functional limitation and physical disabilities of pregnant women.

Study Design: A cross-sectional descriptive study.

Place and Duration of Study: The study was conducted at Benazir Bhutto women and children care hospital (DHQ), Abbottabad from Jan 5, 2014 to Feb 26, 2014.

Materials and Methods: Total 104 patients of 3rd trimester were selected on probabilistic sampling (simple random sampling). Diseased, disabled, women with height less than 4.5 feet (137cm) and third grade obese were excluded. A structured pre-tested questionnaire was used to assess rating of pain intensity, its effect on quality of life, functional limitation and daily activities. Informed written consent was taken from the participants of study. Statistical analysis was done by SPSS version-21.

Results: Among 104, eight women data was not taken into account due to exclusion criteria. Mean age of remaining 96 women was 24.56 (min 18-max 37) years and height was 160.39 (min 144- max 176) cm. Among 96, 66 (68.8%) had pregnancy-related low back pain (PLBP). In which, 2 (3%) were totally dependent, 20 (20.8%) were physically inactive and 30 (31.3%) showed 61%-80% of disability scale. Pain intensity of 36 (54.5%) women was moderate.

Conclusion: The prevalence of pregnancy related low back pain is quite high (68.8%) in Abbottabad population. PLBP adversely affect their quality of lives, limit their routine activities and productivities and even make them physically disable. There is a significant difference between women having pregnancy related low back pain and women without it. ($p=0.452$). Women especially, young ($p=0.390$) and in first pregnancy ($p=0.095$) have severe pain intensity that interferes significantly with their daily living activities.

Key Words: *Low Back Pain, Physical disabilities, Pregnancy.*

Introduction

During last decade, complains of pregnancy related low back pain (PLBP) and pelvic girdle pain (PGP) has become most common.¹⁻⁴ Low back pain (LBP) is a musculoskeletal symptom or simply a pain that is due to pelvic muscles stiffness in between 12th rib and inferior gluteal folds and/or symphysis pubis. It may or may not be associated to the referred pain of legs. LBP during the course of pregnancy is PLBP. It is

always dull in quality.⁵ It restricts spine movement and increases in its intensity on bending forward.⁶ In pregnant women, it is most common and significantly affects their daily activities.⁷ During pregnancy, many factors like physiological, mechanical, hormonal and circulation changes cause PLBP.^{7,8} Hormonal changes stretch ligaments and muscles attached to pelvic joints for accommodation of developing infant. All lumbar and pelvic joints become more flexible. Lumbar lordosis that develops at later stages of pregnancy, gravity shifting, postural changing, and workload lead towards PLBP. One study revealed that severe type of PLBP at during sleeping is the result of venous engorgement in the pelvis. The enlarging uterus exerts pressure on inferior vena cava that results in venous congestion and hypoxia in lumbar spine and pelvis.⁹

PLBP has been known and described many centuries ago. It has been mentioned for the first time by Hippocrates (400.B.C.).¹⁰ Later, numerous

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contributions was led by Vesalins, Ambroise Pare, Severin Pinean, Albinus of Leyden, William Hunter, Luschkaamd and many others. Their core of discussion was whether LBP and/or PGP was a constant/normal phenomena or exceptional/pathological.¹¹ In 1870, Snelling defined the pelvic syndrome and confirmed that LBP and/or PGP is not pathologic at its own.¹² It is actually caused by relaxation of pelvic articulation, which is due to the pressure of fetal head on pelvic bone, likewise, fetal size, physical and muscular weakness, a retroverted uterus and difficult labor causes painful sensation.⁶ In 1962 Walde differentiated between PGP and Lumbar pain (LP) and Ostgaard et al. set the criteria for diagnosis.¹²

Studies show that its prevalence varies between 3.90%-89.88%.^{3,12} Literature is full of the risk factors associated with PLBP. The most common of them (in descending order) are previous LBP, increased weight (BMI), young age, strenuous work, multiparous, LBP with menstruation and smoking.⁴ More than 80% pregnant women with PLBP experience difficulties during their routine activities. It lowers their quality of life, makes them disable for many activities^{2,3} and compel them for frequent bed rest.^{1,13} Whether they have back pain or not they have functional disabilities.³

The aim of this study was to find out the prevalence of PLBP and evaluate the impact of PLBP (in the third trimester) on the quality of life and physical limitation of pregnant women. To compare the standard WHO values of quality of life with this study, and to analyze the correlations among physical ability, pain intensity and functional limitations of the pregnant women with PLBP.

Materials and Methods

A cross-sectional descriptive study, conducted in Benazir Bhutto women and children care hospital (DHQ), Abbottabad, during 05 Jan 2017 to March 2014. Total 104 patients of 3rd trimester were selected by simple random sampling during OPD timing. Selected patients were screened for inclusion and exclusion criteria. The criterion for inclusion in the research was last trimester pregnant women and coming to the mentioned hospital for routine checkup, while those with preeclampsia, eclampsia, systemic disease and psychiatric problems, congenital or physical disable, patients with height

less than 4.5 feet (137cm) and with third grade obesity were excluded from the research. Third trimester pregnant women were first confirmed for the complaint of low back pain by a specialist, sitting in the same OPD at same time. All the data and questions were recorded in a standardized subject profile. This profile was pretested at 10 patients and later on some unethical question were removed. Each patient was interviewed individually for quality of life, routine work, effect of low back pain on their daily activities, pain intensity and to what extent their pain cause disability. Socioeconomic data was also collected from each patient. Other questions related to pregnancy were, gestational age, previous pregnancies, and mode of deliveries. Height and weight was also taken for body mass index (BMI). The Katz's Activity's Daily Living Index (ADL), Short Form of WHO Quality of Life Questionnaire (WHOQOL-BREF), Urdu version, Rating of pain intensity, and the Oswestry Low Back Pain Disability Index (ODI) were also included. Pain intensity was measured by a Visual Analog Scale (VAS), Numeric Pain Intensity Scale. Functional Pain Scale (FPS) was also used to reach the effect of pain severity on their daily activities. Categorical variables were explained by percentages while numerical variables by histogram, mean, minimum and maximum. One-sample t-test was applied to reach the significance of different variables. All calculated data was computed according to validated scoring methods of each tool. Statistical analysis was done by SPSS software (version 21). Original patient's data were filed and was locked by principle author. Informed written consent was taken from all patients. They were assured for maintaining their privileges and anonymity. The study was approved by ethical review board of aforementioned hospital.

Results

A total of 104 third trimester pregnant women participated. Eight women data was not taken into account due to exclusion criteria and only 96 were included in this study. Mean age of these 96 women was 24.56 (18-37) years, height 160.39 (144-176)cm, weight 67.67 (45-86)kg, BMI 26.4 (19-37), and mean duration of pregnancy was 8.08 (7-10)months. All women were housewives and most women were non-matriculated (n=48) and (n=30) were above matric. Younger women aged 22-28 years (n=27)

40.9% had greater prevalence of PLBP than adolescent and middle aged (Table I).

Table I: Age categories versus pregnancy-related low back pain

Age categories	Years	Pregnancy-related low back pain		Total
		No (%)	Yes (%)	
Adolescent	< 22	10(33.3)	19(28.8)	29
Young	22-28	17(56.7)	27(40.9)	44
Middle aged	>28	3(10.0)	20(30.3)	23
Total		30(100)	66(100)	96

Among them, 50 (52.1%) were living in city and almost all of them were using pulses, vegetable of different variety, mutton and rice once in a week. None of them was anemic or male nutritional. Among 96 (100.0%) 3rd trimester pregnant women, 66 (68.8%) had pregnancy-related low back pain (PLBP). All these 66 had suffered PLBP in last two weeks. In other words, PLBP was considered when patients experienced it during last two weeks. There was a significant different between those women that had PLBP and those without PLBP ($p < 0.005$). Among 66 women with PLBP, KATZ activities of daily life resulted in two (3%) patients physically totally dependent on their care providers, 2 (3%) were neither dependent nor independent and remaining 62 (93%) were independent. All women without low back pain were totally independent. Among 74 overweight women, 53 (80.3%) had PLBP. (Table II) Quality of life (QoL) of n66 women with PLBP was measured in four domain and their score were transformed to meet the standard results of WHO.

Table II: BMI and Pregnancy-related low back pain

Weight categories	Pregnancy-related low back pain		Total
	No (%)	Yes (%)	
Normal	6(20)	8(12.1)	14
Obese	3(10)	5(7.6)	08
overweight	21(70)	53(80.3)	74
Total	30(100)	66(100)	96

The domain were Physical, Psychological, Social Relationship and Environmental with mean values of (95.00, 79.64, 48.03, 126.30) respectively. (Table III). Pain intensity of n=96 has been showed in (Table IV). Among them, n=36 (54.5%) women was with moderate intensity which interferes significantly with their daily living activities.

According to Oswestry low back pain disability scoring, most women (n=30, 45.5%) showed 61–80%

Table III: Comparison of transformed domains of this study with WHOQOL-BREF values.

Nature of domains	Min	Max	(WHO Values)/ Mean Values
Transformed score (physical domain)	48.00	140.00	(66.7969±14.548)/ 95.00±20.019
Transformed Score (Psychological Domain)	40.00	120.00	(73.5026±13.716)/ 79.64±19.327
Transformed Score (Social Relationship Domains)	20.00	60.00	(73.1771±17.089)/ 48.0303±10.27913
Transformed Score (Environment Domains)	72.00	156.00	(72.8027)/ 126.3030

Table IV: Severity of low back pain (n=96)

Severity	f=	%
No Pain	30	31.2
mild pain	17	17.7
Moderate pain	36	37.5
Sever pain	12	12.5
Worst pain	1	1.0

disability, i.e., their back pain impinged on all aspects of life and positive intervention is recommended for such patients (Table V).

Table V: Oswestry low back pain disability scoring explained physical disabilities due to PLBP (N=66)

Disability	f	%
0%-20%	1	1.5
21%-40%	1	1.5
41%-60%	13	19.7
61%-80%	30	45.5
81%-100%	21	31.8

When the same tool was applied to those women with moderate pain, majority of them n=23 (63.9%) also resulted in the same 61–80% disability index. Functional pain scale values was computed for limitation of daily activities. Among 66 patients, 61 patients had PLBP at the time of interview and functional pain scale was used for their limitation of daily activities. In this scale, number of women are shown on y-axis and physical limitation on x-axis. (zero [0] is considered as no effect of pain on their daily lives and ten (10) as incapable of doing anything). Its results are shown in Figure 1.

Discussion

To our best knowledge, this is the first ever study done in Hazara population (Pakistan) on the impact of quality of life, physical limitation and intensity of pregnancy-related low back pain (PLBP). It has been

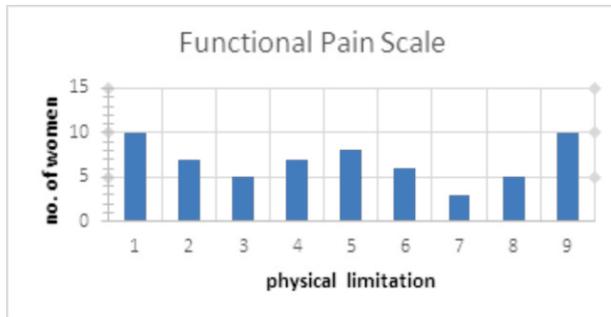


Fig 1. Functional pain scale values versus limitation of daily activities.

Y-axis=number of women and on x-axis=physical limitation (zero [0] is considered as no effect of pain on their daily lives and ten (10) as incapable of doing anything).

mentioned that PLBP is a common problem in a plethora of studies.¹⁻⁴ Its prevalence exists between 3.90%-89.88%.¹² It usually starts as the pregnancy begins but gain its severity during sixth and ninth month of pregnancy.⁴ That is why we studied third trimester pregnant women to reach for its maximum effect on quality of life and functional disability. In our study, it appears the most common problem among pregnant women in Hazara population with prevalence rate of (n=66) 68.8%. Among the observed factors that lead to PLBP are young age¹⁴ first pregnancy, strenuous activities, over weight and height ranges 155-164cm. Average prevalence rate of pregnancy related LPB is 50%.¹⁵ However due to recall bias, its prevalence differs for retrospective and perspective studies. Our study resulted in 68.8%, which is very close to 69%-Italy¹⁶, 66%-Swedish.¹⁷ 68.6% and 67% USA.^{1,18} 71.3%¹⁹ Spanish women and 68.5%³ New Haven.

According to Oswestry Disability Index, (ODI) n=30 (45.5%) are crippled (60%-80%). This is closer to a study done on Beninese women 33.33%.²⁰ But another study mentioned it as 80% whose daily activities are worsen by their PLPB.³ The result of this study, i.e., n=21 (31.8%) women bound to bed, is close to Sabino J's study (30%).⁹

Younger women had greater prevalence of PLBP than adolescent, middle aged and aged women.⁷

The relation of PLBP with BMI is controversial. Mostly overweight women n=53 (80.3%) complaint about PLPB. Morgen et al. also found that women between BMI 24 and 30 had PLPB.⁷ Some of the studies reported that BMI is not a risk factor for PLPB⁴ but

this study strongly suggest that greater the weight of pregnant women, greater will be the chances for PLBP.

Due to different criteria and tools used for pain intensity, very little data is found for comparison purpose. Two studies mentioned 33.3%³ and 44%⁶ women with moderate pain. Whereas this study revealed n=36 (37.5%) suggesting that this moderate intensity of pain is more common and much enough to affect their routine lives.

Quality of life (QoL) of n=66 women with PLBP was measured in four domain and their score were transformed to meet the standard results of WHO. The domain were Physical, Psychological, Social Relationship and Environmental. According to the results of the World Health Organization Quality of Life (WHOQOL BREF) Research, the mean scores of physical, psychological, social and environment domains for healthy women were found to be 13.4, 14.0, 14.1, 13.5 respectively¹⁴ and 14.5, 13.9, 15.3, 13.5 respectively in a study conducted on healthy women in Turkey²¹, whereas our study resulted in (95.00, 79.64, 48.03, 126.30) respectively.

Study limitations included difficult patient relation while interviewing, small sample size and language barrier. In order to meet the standard of social and psychological relationship with this region, and of course, according to the guidelines of WHOQOL-BREF, few questions were omitted and the syntax of this tool was modified.

It is recommended for gynecologists that they primarily educate their patients with PLBP for its prevention. Postural education, physical and alternative therapy and use of support belt, postural pillows and heating pad should always be encouraged. As PLBP appeared the most common problem, therefore its evaluation and proper care should be included in antenatal care programs as well as preventive health programs.

In order to alleviate PLBP and reach the standard criteria of WHO for quality of life, researchers have to study further in large population and improve mother's life.

Conclusion

The prevalence of pregnancy related low back pain is quite high (68.8%) in Abbottabad population. PLBP is among the most common problems of pregnant women of Abbottabad. PLBP adversely affect their

quality of lives, limit their routine activities and productivities and even make them physically disable. Younger aged women with first parity are more prone to sever PLBP. Finally, this study underscore the fact that such worse condition of pregnant women over here is always ignored by both parties, patients as well as by the doctor.

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