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RESEARCH ARTICLE

PREVALENCE OF LOW BACK PAIN DURING PREGNANCY IN RURAL WOMEN IN CHAROTAR REGION OF ANAND DISTRICT

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ABSTRACT

Background: Although LBP during pregnancy is a common clinical problem, no study was found documenting prevalence of LBP during pregnancy in rural women in India mainly Anand district.
Objectives: To find prevalence of LBP during pregnancy in rural women and to identify risk factors associated with LBP during pregnancy in rural women.
Methods: 200 pregnant rural women were recruited from villages of Charotar region with help of Anganwadi workers and from nearby Hospitals. After consideration of inclusion and exclusion criteria informed consent was taken. Details regarding demographic data of women and Modified Oswestry Low Back Pain questionnaire (MOS) was taken in women who complained of back pain.
Results: Prevalence of LBP during pregnancy was found 32%. Pain onset was frequently reported in second trimester of pregnancy (60.93%) and was reported in low back area. Out of total 64 women with back pain; fifty eight (90.62%) women had only LBP while remaining six women (9.37) had LBP with leg pain. Severity of LBP during pregnancy was described as being mild pain (45.31%), moderate pain (46.87%) and severe pain (7.81%).
Conclusion: LBP is common problem during pregnancy in rural women and most important risk factors are LBP during previous pregnancy and menstruation.

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INTRODUCTION

Back pain is common complaint faced in clinical practice world. It is not a diagnosis, but a symptom that occurs in a wide variety of medical, musculoskeletal and neurological conditions affecting the lumbar spine, the sacro-coccyx and pelvis. But it may also include the neighboring organs. In extent it affect the area between first thoracic vertebrae and gluteal folds and often radiates into anterior chest wall and the thighs (Ayanniyi *et al*., 2006). In fact it is estimated that at least 80% of population will experience LBP at some point in their live (Wang *et al*., 2004). The rationale for choosing rural women of Charotar region as the subject is due to the difference in the crop breeding and working methods. The Charotar region of Anand district is famous for a round the year crop including tobacco, bajri, rice and wheat. Most of the rural women are involved as farm labourers and continue to work even till the mid of the 3rd trimester.

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The working position for these women is crouch position for cropping and harvesting for most hours of the day which causes excessive back strain. During pregnancy there are many discomforts experienced by women (Pierce *et al*., 2012). Among those low back pain is often common and disabling condition (Ansari *et al*., 2010). The prevalence of LBP in gestational period is significantly higher than normal population (Thorell and Kristiansson, 2012; Mazicioglu *et al*., 2006; Gutke, 2007). Retrospective studies indicates a prevalence of 48% to 56% while prospective study, which followed pregnant women from the twelfth week found the overall nine-month period prevalence to be 4% (Ayanniyi *et al* 2006). Frequently dismissed as minor and unavoidable, LBP during pregnancy is a serious condition that deserves attention (Ansari *et al*., 2010). Many women report that LBP not only compromises their ability to work during pregnancy but also interferes with activities of daily living (Wang *et al*., 2004). In 30% of women with LBP during pregnancy, the symptoms are severe enough to affect activities of daily living, lower the quality of life, requiring frequent periods of bed rest and cause absence from work.

More than 80% of pregnant women with back pain experience discomfort during daily activities and have difficulties with household work, child rearing and job performance (Ansari *et al*., 2010). Analgesic medications and mobility aids can be required and life threatening conditions such as venous thrombosis can occur as a complication of immobility. An increasing number of women are requesting an early induction of labour or an elective caesarean in order to achieve relief from their pain (Pierce *et al*., 2012). Various studies have investigated possible risk factors for pregnancy related LBP and previous pregnancy LBP seems to be an important factor in development of pregnancy related LBP (Ansari *et al*., 2010; Jimoh *et al*., 2013). Several factors such as age, strenuous work, parity, LBP and pelvic pain during previous pregnancy, body mass index and LBP with menstruation have also been among the factors influencing risk of developing LBP during pregnancy (Ansari *et al*., 2010).

The possible leading cause for LBP or pelvic pain during pregnancy are changes in postural alignment, hormonal changes and compression of expanding uterus on superior venacava (Jimoh *et al*., 2013; Mazicioglu *et al*., 2006). Changes in female postural alignment are natural occurrences as pregnancy develops with overall increase in body mass and a change in centre of gravity. Hormonal changes during pregnancy cause softening of ligaments and the joints particularly of the pelvis, to enable the foetus to pass through birth canal more easily. This results in an increased joint looseness and decreased stability. This in conjunction with lengthening of abdominal muscles, compromises the stability of spine and results in excess mobility of the joints. This may be the cause of pain in the lower back and posterior pelvis. (Jimoh *et al*., 2013). The consequences of pregnancy related LBP are health related quality of life, pain, disability and postpartum depression (Gutke, 2007). Modified Oswestry low back pain disability questionnaire gives information to the therapist that how your back pain has affected your ability to manage in everyday life. It consist of 10 components which are similar to Oswestry low back pain questionnaire except for the sex life component which is replaced by employment and home making ability because the sex life item is frequently left blank. The scoring is done on the basis that A=0, B=1, C=2, D=3, E=4 and F=5. After obtaining total score, the disability is calculated by multiplying patient's total score into 100 and then dividing it by number of section completed into 5. On that basis disability is classified as mild (0-20 %), moderate (21-40%), severe (41-60%), crippled (61-80%), and bed bound (81-100%) (Fritz and Irrgang, 2001; Davidson and Keating, 2002).

MATERIALS AND METHODS

- **Design:** Cross sectional study.
- **Setting:** Villages of Charotar region of Anand district in Gujarat state.
- **Sampling method:** Convenient sampling
- **Sample size:** 200.
- **Inclusion and exclusion criteria:**

Inclusion criteria

- Pregnancy test positive with females in 2nd and 3rd trimester
- Able to understand and cooperate in the study

Exclusion criteria

1. Recent spine fracture
2. Recent abdominal/pelvic surgery
3. Inflammatory/ rheumatoid disease
4. Any bony deformity
5. Neurological disorder
6. Data Collection Tools:
7. Demographic details
8. Data collection sheet
9. Modified Oswestry Low Back Pain Disability Questionnaire

Procedure

Pilot study was done on 100 rural women which were recruited from villages of Charotar region with help of Anganwadi workers. After consideration of inclusion and exclusion criteria informed consent was taken. Demographic data, information about workload, number of previous pregnancies, number of prior deliveries, number of abortions, previous pregnancy LBP, LBP during menstruation was taken by the reviewer through personal contact. Modified Oswestry low back pain disability questionnaire was taken for the women who complained of back pain. After 3 days, Modified Oswestry low back pain disability questionnaire was again taken in the same women who complained of back pain in order to determine intra-rater reliability.

The ICC score was 0.9 which showed excellent correlation between the two data collected by the same rater. The study population was then recruited from nearby Hospitals, villages and Primary Health centres with help of Anganwadi workers and the procedure for pilot study was repeated for them. The study was a permitted by the Institution Review committee to be carried out and the subjects were informed about the purpose of the study along with the informed consent in their known language.

Data analysis

The statistical analysis of the data was performed by using SPSS software 21. Prevalence was calculated using descriptive analysis by calculating percentages of women in the total sample with LBP. In addition, occurrences of hypothesized risk factors were tabulated from the group with LBP. These were 1) time of pain onset (i.e., which trimester); 2) severity of pain (i.e., mild, moderate, severe, or very severe). To identify possible risk factors, prevalence was compared between the pain and no pain groups by using chi-square test, Mann-WhitneyU test as a part of inferential statistics to find the effect of these factors on the presence of low back pain.

RESULTS

There were no refusals to participate, and we had 100% response from all the 200 women. The participants were aged between 19 and 35 years with a mean age of 23.87 years (SD= 2.12). One hundred seventy two (86%) of the women in the study were housewives and the remaining were working as labourers in nearby farms (14%). The prevalence of LBP during pregnancy was 32%. The mean age of the women who

experienced LBP was 24.54 years. The mean age of the women who had no LBP was 23.55 years. Most of the participants began experiencing LBP during second trimester of the pregnancy (60.93%). Out of total 64 women with back pain; fifty eight (90.62%) women had only LBP while remaining six women (9.37%) had LBP with leg pain. The severity of LBP during pregnancy was described mostly as being mild pain (45.31%), moderate pain (46.87%) and severe pain (7.81%). Daily workload ($p>0.05$) (Table 1) showed that there is no significant difference in workload in women with and without LBP. Number of abortion ($p>0.05$) showed that there is no association of abortion with LBP.

LBP with leg pain. The χ^2 value for workload was 0.15 that is $p>0.05$ (Table -1) which accepts the null hypothesis that workload (moderate, heavy and very heavy) has no effect on presence of LBP and thus we conclude that workload was not a significant contributor for LBP in pregnancy. For the factors like number of previous pregnancies and delivery the Mann Whitney U test value was $p>0.05$ (Table -1). Therefore the results shows that there is no significant difference between women with and without back pain. The χ^2 value of number of abortion was 0.62 that is $p>0.05$ (Table -1) which shows that there is no relation of number of abortion with LBP.

Table 1. Prevalence of selected values and tests for difference between women with and without LBP

Variables	All women (n=200) n(%)	No LBP (n=136) n(%)	LBP (n=64) n(%)	Test
Workload				
Moderate	172 (86)	121 (88.97)	51 (79.68)	Chi Square test
Heavy	25 (12.5)	14 (10.29)	11 (17.8)	(0.15)
Very heavy	3 (1.5)	1 (0.73)	2 (3.125)	
No of previous pregnancies				
0	84 (42)	55 (40.44)	29 (43.31)	Mann Whitney U Test
1	70 (35)	50 (36.76)	20 (31.25)	(0.785)
2	33 (16.5)	23 (16.91)	10 (15.62)	
3	10 (5)	6 (4.41)	4 (6.25)	
=or >4	3 (1.5)	2 (1.47)	1 (1.56)	
No of prior delivery				
0	87 (43.5)	57 (41.91)	30 (46.87)	Mann Whitney U Test
1	70 (35)	50 (36.76)	20 (31.25)	(0.666)
2	31 (15.5)	21 (15.44)	10 (15.62)	
3	9 (4.5)	6 (4.41)	3 (4.68)	
=or >4	3 (1.5)	2 (1.47)	1 (1.56)	
No of abortion				
0	192 (96)	130 (95.58)	62 (96.87)	Chi Square test
1	6 (3)	5 (3.67)	1 (1.56)	(0.62)
=or >2	2 (1)	1 (0.73)	1 (1.56)	
Previous pregnancy LBP				
Yes	21 (10.5)	6 (4.41)	15 (23.43)	Chi Square test
No	92 (46)	73 (53.67)	19 (29.68)	(0.000042)
LBP during menstruation				
Yes	57 (28.5)	18 (13.23)	39 (60.93)	Chi Square test (0.000000000003)

However LBP during menstruation and previous pregnancy LBP ($p<0.05$) (Table 1) showed that there is significant difference between the two groups. In addition, the number of previous pregnancies and delivery ($p>0.05$) showed that there is no significant difference between women with and without back pain.

DISCUSSION

The study presents the prevalence of low back pain during pregnancy in rural women of India. Our result indicates a prevalence of 32% in rural women which is different from prevalence of other countries like in USA (57.3%), Nigeria (89.9%), Turkey (54%) and Sweden (72%). These various prevalence rates in different countries can be attributed to cultural difference, lifestyle, education and socioeconomic status of women. It also varies between various retrospective and prospective studies due to recall bias.[4] Moreover this study estimates the point prevalence of back pain which might vary in different trimesters. The most common complaints among women during this period was LBP with or without leg pain. Out of total 64 women with back pain; fifty eight (90.62%) women had only LBP while remaining six women (9.37) had

The χ^2 value of previous pregnancy LBP and menstruation was $p<0.05$ (Table -1) which shows that there is strong association of both factors with LBP. Further our findings indicate that prevalence of LBP is more in second trimester (60.93%). As there is increase in the maternal weight gain, there is alteration in spinal load distribution and so the pain increases (Mazicioglu *et al.,* 2006). The low prevalence in our study in rural women as compared to urban population in various countries is because of low level physical activity and sedentary lifestyle of urban women compared to rural women (Jayamani *et al*., 2013). Moreover due to paucity of health care providers in rural areas, these women do not seek advices for their complaints and bear their pain. Most of the diseases go undiagnosed, either due to less knowledge regarding the disease or no time for regular medical check-up due to increased workload. Thus our study focused on finding prevalence of LBP during pregnancy in rural women.

Conclusion

LBP is common problem during pregnancy in rural women and the most important risk factors are LBP during previous pregnancy and menstruation. These factors can be used as

screening tools for detecting likely cases that can suffer LBP during pregnancy.

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