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Social Determinants of Low Back Pain in Females of Reproductive Age Group Residing in Rural Varanasi, Uttar Pradesh

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ABSTRACT

Background *- Low back pain is a common complaint and is acknowledged as an important socioeconomic and health problem. Low back ache (LBA) not only leads to poor quality of life for individuals all over the world but also leads to decreased productivity. This is a common condition among childbearing women, causing physical disability and an increased risk of obstetric complications.*

Objective*- This study was taken up with the aim to understand the demographic and socioeconomic profile of the respondents. In addition, the relation of Low back pain with the age/gestation at the time of marriage has also been correlated.*

Material and Methods*: It was 6 months prospective study on women in reproductive age group (18-45 years) who are residing in the study area or seeking treatment in PHC/ CHC of district Varanasi. They were interviewed through questionnaire after obtaining an informed consent. Statistical analysis of data was done by proportions and tests of significance.*

Results *- The prevalence of LBA was 76% at early stage of gestation (0 to 22 weeks of gestation) to 86% at late stage of gestation (23 to 36 weeks of gestation).*

Conclusion *- Prevalence of LBA in working women in reproductive age group is high. There is correlation between LBA and age at marriage, past pregnancy and parity etc. Thus, attention must be paid to age of the marriage, parity and time of the pregnancy, weight control etc.*

Keywords: *low back pain; prevalence; spine Low back ache; reproductive age group.*

INTRODUCTION

Low back pain is a common complaint and is acknowledged as an important socioeconomic and health problem which plagues a large section of population in developing as well as developed countries. In developing countries, the situation is reportedly worse with suboptimal working conditions, gross lack of awareness regarding education and training programs of LBP. Low back ache (LBA) not only leads to poor quality of life for individuals all over the world but also leads to decreased productivity due to time off work, increased absenteeism & early retirement and also associated with ever increasing medical cost. Physical, mental and emotional health gets affected by constant LBP. LBA affects women more often than men and this leads to believe that the cause lies in female reproductive system. The female muscular and ligamentary supports are not very strong in females. Further, during pregnancy and labour the mobility of the pelvic girdle exposes the muscles and ligaments to undue strains which after delivery involute sub optimally. A higher number

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of live births are suggested to be associated with LBA. During postpartum period women are exposed to additional physical work and have inadequate rest and sleep.

Problem statement for present study is that LBP in our country amongst females of reproductive age group has a greater chance of being related to social determinants. Impact of LBP in these females has greater effect upon quality life of the female herself as well as all others who are concerned to her; daily life activities are hampered and disturbed grossly as well as her own physical, mental and emotional health gets affected by constant LBP. Rationale of the study is to find association between social determinants and LBP among females of reproductive age group. Results of the study will help to identify and understand the patterns of back pain in urban population and these results can be used to plan target group specific prevention strategies. Also to investigate the quality of life and difficulties faced by women with LBP, particularly coping with discomfort due to physiological changes during pregnancy, in rural areas of Varanasi. The objectives for this piece of research were:

1) To ascertain the demographic & socioeconomic profile of the respondents and its relation with LBP.
2) To determine the common factors responsible for Low back pain among the respondents.

METHODS

Cross-sectional quantitative study was conducted at district Varanasi" from January 2022 to June 2022." Data was collected through pretested interview schedule. Study area: Varanasi district has 8 blocks where block Araziline was chosen & selected & from this best of 117 village out of which CHC - Badanikhurd, CHC – Mataldei and PHC – Bhawanipur was selected purposively. From the study population, 383 reproductive age group respondents residing from District Varanasi, aged between 18 – 45 years old & of those who are seeking treatment for LBA and other associated health related issues or accompanying patients in CHC and PHC were being recruited for the study purpose. The recruitment process was voluntary and there was no predetermined selection.

RESULTS

Data collection was done for 383 female respondents; data entry and analysis was done at SPSS version 22. Age range was 18- 45 years. Educational status revealed: 44 percent of the respondents were illiterate, 11 percent up to 10^{th}, 13 percent up to 5^{th} and 32 percent were literate that is they can read and write, but no formal education. Occupation of the respondents showed: 50 percent were housewives, 26 percent in farming/working in the field, 10 percent were Anganwadi workers, and 14 percent were domestic help/laborers. The lifetime prevalence rates of LBP in the Indian population is higher compared to global and other ethnic populations affecting a large proportion of the population, especially among women, rural population and in elementary workers. The findings of this study can be the basis for formulating policy regarding the prevention and treatment of LBP in a large part of the global population.

Table 1: Response sheet (Early Pregnancy) Low back Pain Score (0-10) score Min 0-10, max 9.3.
Respondents (house wives, domestic workers & working in field/construction site) N-180

Respondents response sheet & Pain score			
Category Severe (difficulty in performing house hold work)	N-60=33%Yes Score range between 7.5 to 9.3	N-15=8%No	Nil Can't say/Occasionally

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Moderate.(Experiencing pain & execration while continuously working for longer duration)	N-46=26% Score-between 5-7	N-08= 5 %	Nil
Mild (relief on rest. Can work without pain for shorter duration	N-31=17% Score less than 5	N-13= 7 %	N-07=4%
Total	N-137=76%	N-36=20%	N-07=4%
Grand Total	-	-	**N-180=100%**

From the above table it can be found out the out of 180 respondents with early pregnancy 137=76%, reported in the following category Max pain-N-60 =33% with pain score ranging between 7.5 to9.3, N46=26% experienced pain with score ranging between scale of 5-7and less than 5 scale participants wereN-31=17%. Whereas N36=20% had no problem and N-07 could not say any specific occasion of experiencing pain during early pregnancy.

Mean= 68.5, SD=47.177.
The chi-square statistic is 21.5077. The *p*-value is .000251. The result is significant at $p < .05$.

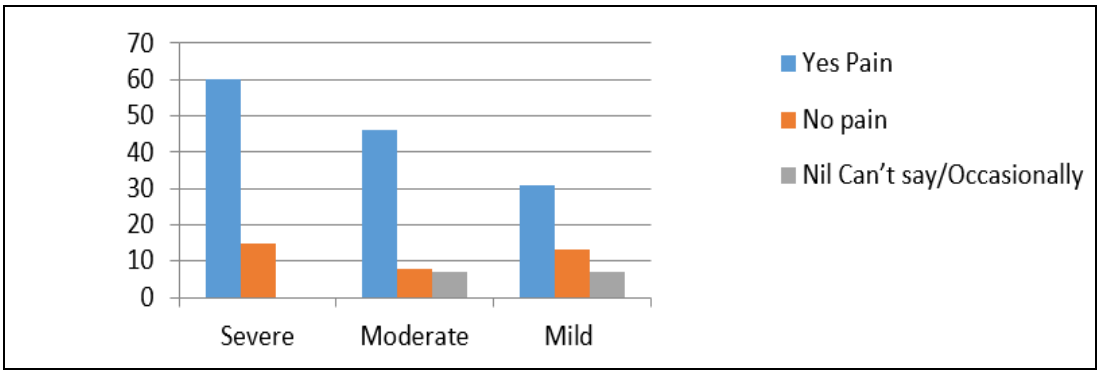

Fig. 1: Bar chart of pain score response sheet of respondents from early pregnancy group (0-22 weeks gestation)

Table 2 Response sheet (Late Pregnancy 23 to 36weeksgestation) Low back Pain Score (1-10) score Min 1-10, max 10. (N-203)

Respondents	**YES**	**NO**	**Can't say/occasionally**
Severe Category	68=34%	10 =5%	Nil
Moderate	50=25%	05 =2%	Nil
Mild	55= 27%	10 = 5%	05=2%
total	173=86%	25 =12%	-
Grand total	173 +	25+	+05=203 =100%

From the above able it can be seen that out of a total of 203 participants (86%) N68=34% belonged to severe category followed by moderate –N50=25% & Mild 55-27%, while N25=12% did not experience any episode of low back pain & N05=2% were non committed Mean=86.5, SD=58.164, Significant level=.05

The chi-square statistic is 10.8083. The *p*-value is .028805. The result is significant at $p < .05$.

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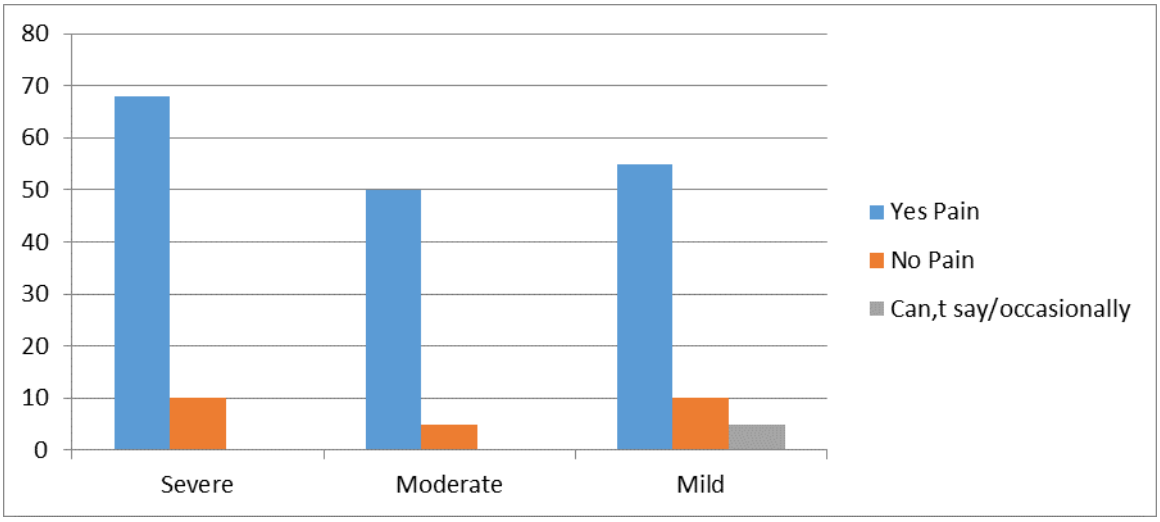

Fig. 2: Bar chart of pain score response sheet of late pregnancy (23 wks to 36 wks) respondents.

DISCUSSION

Low back ache is a cause of sickness and disability in both developed and developing countries. In developing countries, the situation is reportedly worse with suboptimal working conditions, gross lack of awareness regarding education and training programs of LBP. In our study we observed that there was association of LBA with age at marriage, past pregnancy. No positive association of LBA was observed with duration of marriage. In our study 57.7% of women had LBA as past and present complaints which is similar to the findings of Dugan et al where 61% of women in the study group of 2218 reported lumbar spine pain. Another study by S Koms voll JF et al reported a 53% prevalence of LBA in a group of working women while Dolan LM et al found the prevalence of LBA in gynaecologists to be 72%. It was found in our study that majority (62%) of the cases of LBA had late marriage (after 30 years of age). Goel S et al also observed similar findings in their study. It is explained by the fact that late age may be a risk factor for musculoskeletal pains. Women having LBA in higher age group at marriage indirectly demonstrates predisposing to obstetric risks and increasing their chances of back pain. We observed that there is association of LBA with the number of deliveries and the number of abortions. In our study 60.6% of the cases with LBA had history of ≥2deliveries. This tallies with the population-based survey by Silman AJ at al where linear association was found between the number of live births and chronic LBA. LBA was found in majority (78.8%) of women with history of ≥2 abortions in our study which is similar to the observations of Goel S et al. During pregnancy/abortion there is biomechanical stress on ligaments, muscle fatigue with effect of hormone relaxin on joint laxity. Thus, past obstetric history is related with chronic LBA. Marnach ML et al postulated that high oestrogen level during pregnancy is responsible for this effect. Szoeke et al noticed a direct association between increased BMI and increased spine pain. Apart from 73.2% of women with BMI ≥30 had LBA. A three-year study by Brennan Braden et al examined 67,963 postmenopausal women aged 50-79 years with chronic pain and established that increased BMI (≥30) was associated with the worsening of pain.

According to Ratti N et al obesity is known to increase both the direct vertebra compressive load on the spine and the anteriorly acting loads which through the action of the muscles creates very large joint reaction forces. We observed that majority of cases with LBA gave

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history of more than 3 hours sitting at work place which is similar to another study by Shahzad S. Another research by Lewinnek GE et al states that severity of back pain was found associated with sitting for >3 hours. Dolan LM et al found that 54% of gynaecologists experienced back pain while performing surgery in sitting posture whereas 48% gynaecologists had back pain while performing surgery in standing posture. The reason explained for back pain in certain postures is due to generation of high stress concentrations on spinal segments. If posture is held for prolonged time some of the heavily loaded tissues creep gradually from load.

CONCLUSION

Statistically significant associations with social determinants emphasize the need of structured health education program regarding prevention of LBP among this reproductive age group. Further research should be conducted upon a representative sample to have a comprehensive road map for the prevention of LBP in this age group can be planned and implemented. Furthermore, prospective studies are warranted in order to determine causal association between social factors and Low back pain.

The present study strengthens that low back pain has definite impact on family life and livelihood among women during pregnancy. Therefore it is important to create awareness and availability of cost effective medical intervention to all women with similar problem particularly in rural areas of Uttar Pradesh and country at large. 25 to 27% women experienced moderate degree of pain. Physical disability and absentee from occupational commitment increased with the intensity of low back pain. Predictors of moderate to severe low back pain were multiparity and lower level of education. Future research should focus on childbearing women with pre-pregnancy low back pain as they represent the most vulnerable group with the highest risk of moderate to severe low back pain during pregnancy. Such research should include elements of treating physical symptoms as well as cognitive, emotional aspects.

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