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Social Determinants of Low Back Pain in Females of Reproductive Age Group Residing in Urban Lahore, Pakistan

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ABSTRACT

Background: *Nonspecific low back pain (LBP) is a common problem among females of reproductive age group that leads to low quality of life to a greater extent. Nonspecific LBP is other than any diagnosed pathological or structural cause of back pain.* ***Objectives:*** *1) to determine trends of back pain in females of reproductive age group 2) to identify association between social determinants and LBP.* ***Methods****: It was a cross sectional study conducted in one town of Lahore, Pakistan; selected randomly. Convenient sampling technique was applied to recruit the study subjects. Sample size was calculated on Sample Size Determination in Health Studies Software by WHO. Calculated sample size was 89, and researcher had taken a sample of 100 females. Target group for current study was females of reproductive age (15-49 years); and age was categorized into two categories i.e.≤30 years and ≥30 years for frequency determination. Data collection tool was self-developed questionnaire and data collection was done through interview method. Data analysis was done using SPSS 20.* ***Results****: Age range was 18-46 years; Mean age was 32.59 ± 7.73. 27% females had LBP in the ≤30 year category and 60% females had LBP in the ≥30 year category. A total of 87% females were found to have LBP, whereas 13% females did not have LBP. Chi square application revealed statistically significant association (P-value <0.05) between LBP and variables studied: marital status, onset age of menarche, number of children, pressure of daily additional home chores, feeling fatigued by 2pm after doing work since morning, and irregular sleep pattern.* ***Conclusions****: Significant association between LBP and social determinants in present study emphasize upon further research in this area with a representative sample of the total population and more detailed and comprehensive questionnaire. This will help to plan and implement health education and preventive plan in this age group.*

Key words: *Females, reproductive age, low back pain, social factors*

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INTRODUCTION

Low back pain (LBP) is currently acknowledged as an important socioeconomic and health problem which plagues a large section of population in developing as well as developed countries.[1] In developing countries, the situation is reportedly worse with suboptimal working conditions, gross lack of awareness regarding education and training programs of LBP.[2] LBP 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 and early retirement. Furthermore, LBP is definitely associated with ever increasing medical costs.[1] Health hazards of LBP are also seen in the form of: work

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disability- people taking leave for longer than four days on account of musculoskeletal disorder, 33% of them had LBP.[3] It has been found that at the back end of high incidence of low back pain among youth and middle-aged population; lays the fact that this range of population has to maintain a high degree of active life in daily routine. In addition, this is the time when age related degenerative changes also start to occur.[4] Sometimes this pain becomes so severe that it will definitely affect daily activities of individuals.[5] Previous research upon teachers revealed that prevalence of LBP was higher in females as compared to males (58.7% Vs. 47.7%, p-value <0.001).[6] A study stated age standardized prevalence of back pain was 32.9% in the year 2007; higher among women than men (P <0.001).[7]

In previous literature, back ache is defined as: activity limiting low back pain (+/ - pain referred to one or both lower limbs) that lasts for at least one day. Globally prevalence of back ache in females is 64%.[8] Normally LBP is categorized on the basis of its duration.[9] LBP that lasts for less than a week's time is called acute LBP and pain which lasts for more than a week to months is called chronic LBP. Acute pain is resolved after treatment but if not treated then it becomes chronic.[10] Chronic LBP keeps disturbing the individual during his working environment and will affect the daily activity.[11] In a previous research conducted in Lahore, Pakistan prevalence of chronic backache was studied in office workers of two tertiary level hospitals. This study included 59 male and 34 female respondents; and gender was found to be a risk factor for backache as females was found to have more intense pain as compared to males and with increasing age frequency and intensity also increased. This study also found that majority of the respondents were not observing correct posture during working hours, and 82% of the respondents were not doing any regular exercise.[12]

Pakistan is agriculture based developing country having a patriarchal society structure where female population is more than males; literacy rate in females is less than males, and developmental goal of women empowerment is still a huge challenge to achieve. Females are not part of decision making in our social set up regarding important aspects of life related to education, health care, reproduction, family size, holding job etc. Desired family size in our society on average is four children. 22% females are in reproductive age group and 16% females are married at one point in time in a given population in any area. Median age at marriage for females is 19.5 years.[13] Keeping this entire scenario in mind possibility of psychosocial factors playing a significant role in causation of LBP is very high.

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. Furthermore, this kind of study has not been done in Lahore- Pakistan in recent past; hence it will pave way for research with representative sample size that will enable us to identify association factors for LBP.

Objectives of the present study are: (1) To determine trends of backache in females of reproductive age group (2) To identify association between social determinants and LBP.

After literature search research question developed for present study: Is there an association between social factors and lower back ache among females of reproductive age group?

METHODS

It was a cross sectional study conducted in one town of Lahore selected randomly by balloting method out of a total of nine towns (Lahore Cantonment) in Lahore, Pakistan. Inclusion criteria for the present study were: 1) females of reproductive age group (15-49 years) both married and unmarried. Exclusion criteria were: 1) unwillingness on part of the study participant 2) females who had been taking any treatment for a diagnosed cause of LBP, had a physical deformity of back, or gave a history of injury or trauma to backbone. Convenient sampling technique was applied to recruit the study participants and enrolment was done after informed verbal consent. Data collection tool was a self-developed questionnaire which was developed after extensive literature review. Data was collected through personal interview method by the researcher herself and collection procedure was completed in two months' time period. Sample size was calculated using prevalence of 64% [(8)] upon sample size determination in health studies software by WHO. Calculated sample size was 89 and data had been collected from 100 respondents. LBP was labeled on self-reporting of the study respondent and was categorized into; occasionally: 1-2 episodes/month, sometimes: 3-4 episodes/month, frequently: >4 episodes/month. Pilot study was conducted on ten respondents chosen randomly and few required changes were done in the questionnaire accordingly. Data analysis was done using SPSS 20; descriptive analysis was done and frequency trends of LBP were noted according to the definition of low back pain given earlier, and categorization of frequencies made accordingly. Chi square test was applied on categorical variables to identify association between social determinants and LBP.

Dependent variable: Low back pain; which is a binary variable.

Independent variables: social factors like; lack of exercise, lack of walk, sedentary life style, self-perception of obesity, inappropriate working conditions (>3 hrs sitting, >3 hrs standing, travelling job, late night working, late night studying), lack of sleep, disturbed sleep, pressure of daily

home chores, smoking, uncomfortable bed, presence of fatigue by afternoon, wrong posture, age at menarche, multiparity, and rearing of small kids.

RESULTS

Data collection was done for 100 female respondents; data entry and analysis was done at SPSS 20. Age range was 18-46 years, Mean age 32.59 ±7.73. Educational status revealed: 42 females were Graduate degree holder, and 52 females were Post Graduate degree holder or in process of completion of said degree. Occupation of the respondents showed: 28% females were house wives, 39% females were working, and 33% females were students. Marital status showed: 36% females were unmarried and 64% were married. LBP categorization in the sample population found: 30% reported to have occasional LBP, 42% reported to have LBP sometimes, and 15% reported to have frequent LBP.

Table 1: Frequency trends with daily activities of respondents (n= 100)

Variable	Yes (%)	No (%)
Do you exercise regularly?	5%	95%
Do you walk regularly?	76%	24%
Inappropriate working conditions		
• > 3 hrs sitting	48%	
• >3 hrs standing	7%	
• Highly travelling job (marketing managers)	4%	
• Late night working	11%	
• Late night studying	16%	
• No response	13%	

Table 2. Frequency trends with contributing factors towards LBP (n= 100)

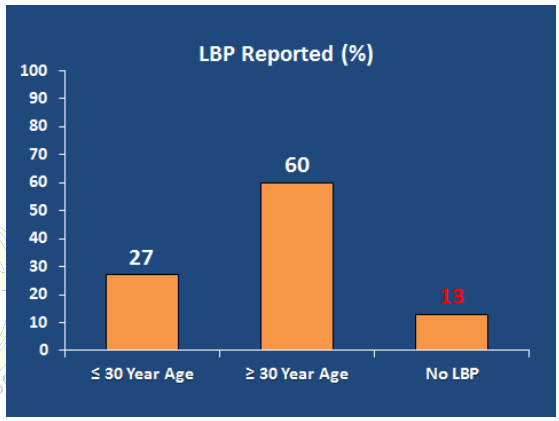
Variable	Yes	No	Sometimes
Regular sleep pattern	22	68	10
Disturbed sleep pattern	7	72	21
Late night sleeping	55	10	35
Daily additional pressure of home chores	44	48	8
Smoker	0	100	0
Use of uncomfortable bed	11	88	01
Feeling of fatigue by 2PM after doing work since morning	64	21	15
Non-Observance of correct posture throughout the day	94	6	0
Rearing children less than 5 years of age	18	82	0

Frequency trends of LBP in both age categories was made and result showed: 27% females had LBP in the ≤30 year category; and 60% females had LBP in the ≥30 year category. Hence a total of 87% females were found to have LBP, whereas 13% females did not have LBP; with the limitation that LBP was measured as the self-reported presence of the disorder among respondents, and questionnaire was a generalized one. 28%, 52%, 20% females reported onset age at menarche as 10, 11, and 12 years respectively; non-differential recall bias may have played a role in this information. Out of the total married, 41% females had 3-4 children, 19% had 1-2 children, and 40% had no children. According to respondent's own perception 94% had sedentary life style, and 20% were overweight.

Table 3. Significant Associations between Social factors and LBP (n=100)

Variable	Chi square value	Df	P-value
Marital status	20.565	1	0.000***
Onset age at menarche	16.387	2	0.000***
Number of children	17.164	4	0.002**
Pressure of daily home chores	11.753	1	0.001**
Feeling fatigued after doing work by 2 pm	28.168	1	0.000***

Borderline significant association was found among irregular sleep pattern and LBP (P-value0 .056, df=1).



Frequency trends of LBP among the two age categories in females of reproductive age group (n=100)

DISCUSSION

Frequency of LBP increases as age advances; in elderly population (age≥ 40 year) it is as high as 20-40%. Whereas its prevalence in young and middle age population (i.e. late teens to 40 year of age) is about 10-25%. People in this age group are exposed to various stresses and are highly active in daily life. Age related changes are minimal in this age group as compared to the elderly population. Under these circumstances, hence, LBP in this age group is characterized by high incidence of "so called low back pain", or nonspecific LBP without having any clear-cut diagnosis. Non-specific LBP involves many factors; other than structural and physiological abnormalities many socio psychological factors are major cause of LBP. These factors comprise of obesity, over work, lack of exercise, and mental stress induced LBP.[4] Many other socio demographic variables such as gender, age, socio economic status and education level have also been studied in connection with LBP. Increasing trend of LBP with increasing age and statistically significant associations between social factors and LBP are the strength of present study. Positive finding in present study regarding increasing trend of LBP with increasing age (60% in ≥ 30 year category) is supported by

a previous study that states that age could be one potential predictor for LBP. Whereas present study did not find statistically significant association between age and LBP, which is opposite to the other study that found significant association between age and LBP.[14] Probable explanation for this might be the small sample size in current study; and result might have been different with a large sample size. Our study revealed statistically significant association between onset age of menarche and LBP (P-value 0.000), marital status and LBP (P-value 0.000), and multiparity and LBP (P-value 0.002); these findings are consistent and strongly supported by another research that stated: early marriages and multiparity leads to LBP among females of reproductive age group.[15] Borderline significant association has been found between LBP and sleep pattern (P-value .056); and very high significant association among LBP and feeling fatigued by afternoon after doing work since morning (P-value .000); both these positive findings are strengthened by other studies that also have found that backache is caused by fatigue.[16,17,18] Present study also found that 94% of the respondents do not observe correct posture during daily activities (although statistically significant association could not be established with LBP) which is strongly supported by other studies that state: back ache is caused by due to wrong posture in daily activities.[16,17,18] Statistically significant association (P-value .001) between LBP and pressure of daily additional home chores is another strong finding of present study; which is strongly supported by another study that found: increased hours of unpaid work at home, and doing certain activities daily like lifting of objects or children over 11 kg were correlated with LBP.[19] This finding of present study is also consistent with another research that states: women in comparison to men were found to spend more time on house hold activities, thus they were more likely to have musculoskeletal disorder which includes LBP.[20] 39% of study respondents are working, although significant association has not been found between LBP and working conditions but this result is supported by another study done upon population working in different job places and it states: teachers occupied with schools for handicapped children, physical education teachers, kindergarten personnel, and school nurses were found to have high prevalence of LBP.[1,21] More than 3 hours sitting at work place in majority of our respondents with LBP is also supported by another research that states severity of back pain was found associated with sitting for >3 hours.[22] Findings of present study warrants to conduction of further research in this area with representative sample size and inclusion of few other social factors that could be related to LBP e.g. diet.

CONCLUSION

In urban population of Lahore non-specific LBP among females of reproductive age group has been found to have increasing trends. Statistically significant associations with social determinants emphasize the need of structured health education program regarding prevention of LBP among this age group. Further research should be conducted upon a representative sample in Lahore; so that 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 LBP.

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