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Prevalence of Low Back Pain and Disability among the Non-working Adult Women in a Rural Community of Purba Barddhaman, West Bengal

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ABSTRACT
Low back pain (LBP) is the one of the most frequent work related musculoskeletal problem and is one of the leading causes of health related problems. It affects a large number of people each year and is the cause of great discomfort and economic loss. The study aims to determine the prevalence of low back pain among non-working adult women in rural community and to find out the extent of disability due to low back pain. The association of BMI and low back pain in this community is also determined. This study was a descriptive – observational study with cross-sectional in design. The study period was January 2015 to April 2015 and carried out in Bhatar Community Development Block of Purba Barddhaman District of West Bengal. Descriptive analysis of the responses revealed that the prevalence of recent (in last 7 days) and yearly episodes of low back pain in women of Bhatar is 31% and 40% respectively. Prevalence of both the recent episode and yearly episodes of low back pain is highest in 61 to 70 years age group. High BMI is significantly associated with low back pain. Health education measures about correct posture, daily activity and seeking medical care in times of need could help rural housewives to prevent disability due to low back pain.
Keywords: *Low back pain, Adult women, Purba Barddhaman, BMI.*

INTRODUCTION

Low back pain (LBP) is the one of the most frequent work related musculoskeletal problem and is one of the leading causes of health related problems in developed world.[1,2,3,4] It affects a large number of people each year and is the cause of great discomfort and economic loss.[5] Low back pain creates a substantial financial burden on individuals, families and communities and on countries, as a whole.[6] The yearly prevalence varied from 5% to as high as 65% and lifetime prevalence from 35% to 80%.[4] It is widespread in many countries and may be associated with chronic and disabling symptoms and loss of quality of life.[7] In India, most of the low-income group people are engaged in jobs with strenuous physical activity, which may increase the risk of low back pain and disability.[8]

There is low healthcare access in rural areas. Compared to urban ones, rural residents were more prone to develop low back pain.[9] Most of the rural women work every day in field as well as in household. In Indian society, family members and relatives play an important role in one's life, especially in the life of a woman. There is always a physical stress from the strenuous work that a rural woman has to undergo every day.[1] This may result in chronic pain in different parts of the body, especially low back pain. The non-neutral posture of the trunk frequently adopted by women is risk for developing a low back pain.[10] There is also a positive correlation with obesity and low back pain.[11]

The study aims to determine the prevalence of low back pain among non-working adult women in rural community and to find out the extent of disability due to low back pain. The association of BMI and low back pain in this community is also determined.

MATERIALS AND METHODS

This study was a descriptive – observational study with cross-sectional in design. The study period was January 2015 to April 2015. It was carried out in Bhatar Community Development Block of Barddhaman (now Purba Barddhaman) District of West Bengal. As per the Census of India held in 2011, Bhatar CD Block had a total population of 263,064 with 51% males and 49% females.[12]

Taking prevalence of Low Back Pain as 42% as in study conducted in Puducherry,[8] 95% confidence limits and 10% absolute precision, the minimum sample size required for the study was 94. However, considering a non-response rate of 5%, the sample size works out to be 100. Out of 104 villages in Bhatar block, one village was selected by simple random sampling.

Considering the previous literature available, the women who were engaged in any occupational activity other than household work were excluded from the study. Women with neurological disorders, tumor, infection, or any major trauma to the spine causing fracture were also excluded from study. Serously ill, pregnant women and those who were unwilling to give consent were also excluded.[1,13]

Before proceeding with the interview in the selected village the interviewer listed the names of non-working adult women from Accredited Social Health Activist (ASHA) of the village. If the women present in the house were eligible for the study according to the inclusion-exclusion criteria and were willing to give consent in the study, they were then asked to provide their demographic details, any present or past medical history, family history, surgical history. The questionnaire was based on Nordic Musculoskeletal Questionnaire (NMQ),[14] and Oswestry Disability Question-naire.[15] which was translated from English to Bengali and thereafter back translated to English and was then validated by the experts. According to Oswestry Disability Questionnaire, disability was classified according to the scores: 0%-20%: no or minimal disability; 21%-40%: moderate disability; 41%-60%: severe disability; 61%-80%: crippled; 81%-100%: bed bound or persons with exaggerated symptoms.[15] Height and weight were measured to calculate the Body Mass Index (BMI) of the study population.

RESULTS

The study was conducted to find out the prevalence of low back pain amongst the housewives of rural areas of Bhatar CD Block. The descriptive statistical analysis of subjects (N = 100, rural housewives) shows that the mean age of the study population was 48.55.

Descriptive analysis of NMQ responses reveals that the prevalence of recent (in last 7 days) and yearly episodes of low back pain in women of Bhatar is 31% and 40% respectively (Table 1).

Table 1: Distribution of the study population according to the prevalence of episode of Low Back Pain in last 7 days and 1 year

Age groups (in years)	No. of study subjects	Low Back Pain in last 7 days	Low Back Pain in last 1 year	Restriction in daily living activity in last 1 year
21-30	17	2 (11.76)	3 (17.65)	2 (11.76)
31-40	20	4 (20.00)	6 (30.00)	3 (15.00)
41-50	21	6 (28.57)	7 (33.33)	5 (23.81)
51-60	18	9 (50.00)	9 (50.00)	9 (50.00)
61-70	9	5 (55.56)	8 (88.89)	7 (77.78)
71-80	10	4 (40.00)	5 (50.00)	4 (40.00)
81 & above	5	1 (20.00)	2 (40.00)	1 (20.00)
Total	100	31 (31.00)	40 (40.00)	31 (31.00)

Figures in parentheses indicate row percentages

The table 1 shows that prevalence of both the recent episode and yearly episodes of low back pain is highest in 61 to 70 years age group i.e. 55.6% and 88.9% respectively. The prevalence steadily increased according to age upto 61 to 70 years age group. The occurrence of restriction in daily living activity was also highest (77.78%) in this age group. However, the overall prevalence of restriction in daily living activity in last 1 year is 31%. Among the 40 housewives, who suffered from episodes of low back pain in last 1 year, 31 (77.5%) had episodes of restricted daily activities in last one year.

Disability was assessed by means of Oswestry Disability Index. This questionnaire has been designed to give information as to how pain is affecting the ability to manage in everyday life. The cross tabulation analysis (table 2) shows that out of 100 women, 65 had minimal or no disability. Twenty three women were moderately disabled, five women were severely disabled, four women were crippled and three women were bed bound.

Table 2: Distribution of study population according to disability in different age groups

Age groups	Disability as per Oswestry Disability Index					
	No or Minimally Disabled	Moderately Disabled	Severely Disabled	Crippled	Bed bound	Total
21-30	14 (82.4)	3 (17.6)	0 (0)	0 (0)	0 (0)	17 (100)
31-40	16 (80.0)	3 (15.0)	1 (5.0)	0 (0)	0 (0)	20 (100)
41-50	15 (71.4)	6 (28.6)	0 (0)	0 (0)	0 (0)	21 (100)
51-60	11 (61.1)	5 (27.8)	2 (11.1)	0 (0)	0 (0)	18 (100)
61-70	1 (11.1)	3 (33.3)	1 (11.1)	4 (44.4)	0 (0)	9 (100)
71-80	5 (50.0)	2 (20.0)	1 (10.0)	0 (0)	2 (20.0)	8 (100)
80 & above	3 (60.0)	1 (20.0)	0 (0)	0 (0)	1 (20.0)	5 (100)
Total	65 (65.0)	23 (23.0)	5 (5.0)	4 (4.0)	3 (3.0)	100 (100)

Figures in parentheses indicate row percentages.

Disability in different age groups as shown in table 2 indicate that crippling and bed bound due to low back pain are seen in elderly population. 4 of them were crippled and 3 were bed ridden.

Table 3: Distribution of study population according to BMI and episodes of LBP or Restricted Daily Activity in last one year

	Episode of LBP in last 1 Year	Episode of Restriction of Daily Living Activity in last 1 Year
BMI < 25 kg/m^2 (n$_1$=77)	26 (33.77)	20 (25.97)
BMI ≥25 kg/m^2 (n$_2$=23)	14 (60.87)	11 (47.82)
Total (n=100)	40 (40)	31 (31)

Figures in parentheses indicate row percentages

According to WHO classification of BMI, overweight is defined as BMI ≥25 kg/m^2 to 29.9 kg/m^2. Out of 100 study subjects, 77 women had BMI less than 25 kg/m^2 and 23 had BMI greater than or equal to 25 kg/m^2. Episodes of low back pain in last one year was present in 60.87% of individuals with BMI ≥25 kg/m^2, which is statistically significant by Chi-square test (χ^2value = 5.421, df = 1, p = 0.020). Restricted daily living activities in last one year among the women with BMI greater than or equal to 25 kg/m^2 (47.82%) is also statistically significant (χ^2value = 3.954, df = 1, p = 0.047).

Out of 40 persons, who had at least an episode of low back pain in last one year, 26 (65%) sought medical attention and among 31 persons, who had restricted daily living activity in last one year, 21 (67.7%) sought medical attention. Thirty five persons had Oswestry Disability Index above 20% (moderately disabled and above). Out of these 35 persons, 22 (62.9%) had sought medical attention.

Table 4: Cross tabulation of persons seeking medical attention and disability

Disability according to ODI	No. of Disabled	Sought medical attention	Percentage
Moderately Disabled	23	17	73.9
Severely Disabled	5	2	40
Crippled	4	2	50
Bed bound	3	1	33
Total	35	22	62.9

As in table 4, it can be seen that 73.9% of moderately disabled persons sought medical attention for disability, whereas only 33% of the bed bound women sought medical attention.

DISCUSSION

Globally, lots of literature is available on low back pain, but India there is paucity of literature regarding prevalence of low back pain amongst the adult women in a rural community. This study reveals that the prevalence of recent (in last 7 days) and yearly episodes of low back pain in rural non-working women of Bhatar is 31% and 40% respectively. The findings of a study conducted in Kanpur amongst the housewives show that 83% of the rural housewives have recent episodes of low back pain as well as in last one year.[1] However, in a study conducted in Puducherry in 2013 has shown overall prevalence of low back pain amongst women is 42%, which is somewhat similar to the present study.[8] In this study, the highest prevalence is seen in 61-70 years age group both in cases of recent and yearly episodes. The prevalence of restricted activities of daily living is highest (61.78%) in this age group. This is corroborating with the Kanpur study, where the prevalence was 88.24%.[1]

The subjects of this study were non-working rural women. They actively participate in all sorts of household activities such as maintaining their house, collecting water, sweeping, washing clothes, lifting loads, taking care of domestic

animals, helping their husbands in fields. These activities require repeated forward bending, turning movements, lifting heavy objects, which may result in low back pain after some period of time. Moreover, increased BMI is also significantly associated with the prevalence of low back pain and restricted daily living activity in last one year. This corroborates with the findings of a study by Urquhart DM et al., where women with higher levels of disability have higher BMI.[16] Among the 35 persons who were having moderate or higher disability, 22 (62.9%) sought medical care.

CONCLUSION

Low back pain is a common problem of the women of rural areas. It may lead to social and economic burden on the community. Health education measures about correct posture, daily activity and seeking medical care in times of need could help rural housewives to prevent disability due to low back pain.

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