

■ *Original Article*

Epidemiological study of back pain in the Teaching Districts of B.P.Koirala Institute of Health Sciences

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Abstract

Introduction: The prevalence of back pain is very high in the general population but little is known about the predictors of back pain in the general population. Though certain risk factors have been associated with back pain, these are mentioned in Western literature. It is not known how much of these hold true for a developing country like Nepal. **Objective:** To estimate the prevalence of back pain in the Teaching Districts of B.P.Koirala Institute of Health Sciences and to identify predictors of back pain in the community. **Methods:** Three hundred and fourteen persons of eighteen years and above were included in this cross-sectional descriptive study conducted from January 2006 to December 2009 using pretested questionnaires. **Results:** The annual prevalence of back pain among males (67.9%) and females (74.3%) were similar ($P>0.05$) and the overall annual prevalence was 71%. The highest prevalence of back pain was found in the age group of 31-40 years. Age, marriage and occupation were related significantly to the occurrence of back pain. The total duration of back pain in one year was less than 15 days in 73%. The number of workdays lost was upto 5 in 81% of people with back pain. **Conclusion:** Back pain is a very common complaint among the adult population in the community. Population belonging to 31-50 age group, married status and farmers and labourers are more prone to have back pain. Gender, height and weight are not associated with back pain.

Keywords: back pain, predictors, community

Introduction

The high frequency occurrence of back pain and the magnitude of its impact on society explain the large number of epidemiologic studies.¹ Hult estimates that upto 80% of the people are affected by backache at some time in their lives.² Little information exists in the literature regarding the epidemiology of back pain in developing countries.³ Disorders of the lumbar spine are among the most common medical problems in western countries, affecting upto 80% of people at some time during

their lives.⁴ Little is known about the predictors of low back pain in the general population. Though certain risk factors like smoking, obesity, driving, psychological stress, age, height and patterns of work especially heavy work have been associated with back pain, these are mentioned in Western literature. It is not known how much of these hold true for a developing country like Nepal.

The economic loss to the society and patients incurred as the result of backache in terms of work loss, work compensation and treatment is staggering. Frymoyer estimates that the direct medical and the indirect costs of backache are in the range of more than 50 billion US dollars per annum and could be as high as 100 billion dollars per annum at the extreme.⁵ In Nepal it is quite difficult to estimate the loss

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incurred due to work loss and because insurance is not done commonly, it is difficult to calculate work compensation.

The main objective of this study was to estimate the prevalence of back pain and to identify the possible predictors of back pain in the Teaching Districts of B.P.Koirala Institute of Health Sciences which could be taken as representative of eastern Nepal.

Methods

This is a community-based cross sectional study conducted from January 2006 to December 2009 in the Teaching Districts of B.P.Koirala Institute of Health Sciences which includes Ilam, Bhadrapur, Dhankuta, Inaruwa, Rangeli and Rajbiraj. Households in the periphery of the hospitals in each of the towns were selected randomly and pretested questionnaires were used to interview the available members of the family. A total of 314 persons were included in the study. The questionnaires included questions relating to variables like age, sex, marital status, number of children, occupation, height, weight and number of episodes of backache in the past one year from the date of interview.

The study was approved by the Ethical Review Board of the Research Committee of the Institute. The study was funded by the Research Committee of B.P.Koirala Institute of Health Sciences.

The collected data were entered into computer through Microsoft Excel program. Using Epi Info 2000 software, the data were summarized by calculating frequencies and percentages for discrete variables and mean and standard deviations for continuous variables. The Chi square test was used to examine the significance of difference between the discrete variables and Mann-Whitney U test, a non-parametric test was applied to test the significance of difference amongst continuous variables. Alfa was set at 5% level of significance.

Results

The study population consisted of 314 adults of 18 years and above with a mean age of 40.19±15.19 years of which 162(51.6%) were males (mean age=42.15±15.09 years) and 152 (48.4%) were females (mean age=39.59±15.24 years). The age ranged from 18 to 87 years. The prevalence of back pain among males was 67.9% and among females was 74.3% (Chi square=1.58, d f=1, P>0.05). The

overall annual prevalence of back pain among both males and females was 71%. Though the percentage of females having back pain was higher than that of males, the probability of significance shows that gender did not have significant relation to back pain. The distribution of age group in relation to the presence or absence of back pain is shown in table 1. It shows that the highest prevalence of back pain is in the age group 31-40, closely followed by age group 41-50.

Table 1: Distribution of back pain according to age group

Age group (years)	Back pain present	Percentage out of whole sample population
18-20	6	1.91
21-30	38	12.10
31-40	63	20.00
41-50	56	17.83
51-60	32	10.19
>60	28	8.92
Total	223	71.00

The means of age, height and weight of the persons having and not having back pain are shown in table 2. The table shows that only age had significant relation to occurrence of back pain. Younger the age the less is chance of having back pain.

Table 2: The relation of age, height and weight to back pain

	Back pain	N	Mean±SD	t value	d f	P value
Age (year)	Present	223	43.74±15.071	5.401	312	<0.001
	Absent	91	33.97±13.190			
Height (cm)	Present	223	158.39±9.670	-.911	312	0.363
	Absent	91	159.45±8.529			
Weight (kg)	Present	223	58.74±10.276	.918	312	0.359
	Absent	91	57.54±10.963			

Of all the study population interviewed, 279 (88.85%) were married/widow/widower and 35(11.15%) were unmarried. Among the married population, 76.0% of had back pain whereas only 31.4% of unmarried had back pain. (Chi-square= 29.99, P<0.001). Marriage had a strong statistical correlation with back pain.

Of the 152 females, 19(12.5%) females had undergone one or more abortions and 133 (87.5%)

had not undergone any abortion. The prevalence of back pain among those with abortion was 78.9% and that among those without it 74.4%. (Chi-square=0.225, d f=1, P>0.05). Abortion did not have any significant relation to the presence or absence of back pain.

Among the study population, 246(78.9%) were smokers and 66(21.1%) were non-smokers. Among the non-smokers 69% had back pain and among the smokers 78.8% had back pain (Chi-square=2.450, d f=1, P>0.05). Smoking did not have any significant association with back pain.

The common occupations in the study population were housewife (125), farmer/laborer (67), business (41), service (43), students (26) and others (12). Among these, the highest rate of back pain was found among the farmers/laborers (85.1%) and the lowest among the students (30.8%). The distribution of back pain among the various occupations is shown in table 3. The proportion of significance shows that occupation has a significant relation to the occurrence of back pain.

Table 3: The distribution of back pain according to occupation

Profession	Back pain		Total	Chi-square value	P value
	Present	Absent			
Housewife	91 (72.8%)	34 (27.2%)	125	27.972	<0.001
Farmer/laborer	57 (89.4%)	10 (10.6%)	67		
Business	27 (65.9%)	14 (34.1%)	41		
Service	32 (74.4%)	11 (25.6%)	43		
Student	8 (30.8%)	18 (69.2%)	26		
Others	8 (66.7%)	4 (33.3%)	12		
Total	223	91	314		

Of all the study population, 223 (71%) had back pain. They were asked what they thought were the causes of their back pain. There were 295 responses; some of the respondents gave more than one cause. Excessive exertion was the most common (36.3%) response. The other ones were lifting heavy weights (15.3%), associated medical illness (14.2%), general weakness (13.9%), some trauma (7.1%), menstruation (0.7%), bad posture (0.7%) and aging (0.4%).

Of the 223 patients who had back pain, only 58.7% of respondents sought treatment, 41.3% did not.

The number of episodes of back pain in the past one year varied from one to more than 10. Among those who had back pain, there were one, two and three episodes in 22%, 29.6% and 18.8% respectively. Ten or more episodes of back pain were present in 1.8%. Most of the patients with back pain had 1-5 episodes (87.4%).

The back pain in one year among those who had back pain lasted for upto 15 days in 70.9% and between 16 days to 30 days in 15.2%. It was between 1 to 3 months in 9.9% and more than 3 months in 4% of the persons having back pain.

The severity of the pain was graded subjectively. Pain that did not disturb their work was considered mild, pain that was severe enough to disturb their work was considered moderate and pain that caused the patient to be bed ridden was labeled as severe. Mild, moderate and severe pains were experienced by 60.5%, 32.35 and 7.25% of the respondents respectively.

The number of workdays lost was less than 5 in 81% in the back pain group, between 6 to 10 days in 9.3%. 7.4% lost between 11 to 30 days and 2.7 % lost more than a month.

Only 131 persons (58.7%) among those with back pain sought medical treatment. One of the questions to the interviewees who did not seek medical treatment was the reason for not doing so. The most common answer (71.3%) was that it was because the pain was mild and self limiting. The other reasons for not seeking medical treatment were lack of time (18.1%), medical services being too far away (4.3%) and no money (3%) respectively. There was no response from 3%.

Amongst those who received treatment, the most common diagnosis for their problem made by their treating doctors was mechanical back pain (42.2%). Others included degenerative aging (9.5%), weakness (6.9%), and trauma (5.2%). Among the respondents who received treatment, 12.1% could not recall the diagnosis or no diagnosis was made in their cases.

Regarding the duration of treatment among those who sought medical treatment, it lasted for upto 15 days in 73%, from 16 to 30 days in 14.2% and in 12.8% the treatment exceeded one month.

The response to treatment among the study population is shown in table 4.

Table 4: Response to treatment

Response to treatment in percentage of relief	Percentage of population with back pain
Upto 25	3.7
26-50	24.4
51-75	23.8
76-100	48.1

Discussion

The annual prevalence of back pain in the study population of this study is 71%, being slightly higher in females (74.3%) as compared to males (67.9%). This indeed is a very high prevalence. There are studies which estimate the lifetime occurrence of back pain in upto 80% of population.²⁻⁴ Similarly Frymoyer et al in their study entitled 'Risk factors in low back pain' have shown that during a lifetime, 70% of men will have at least one episode of back pain.⁶

In the general population, the incidence of back pain appears to be equally distributed between men and women.⁷ Our study also showed no correlation between gender and back pain.

We tried to find the association of age, height and weight with back pain. Age had a strong association with the occurrence of back pain. The group without back pain tended to be younger (43.74 years in back pain group as compared to 33.97 in no back pain group). Weight and height did not have any relation to the back pain. This is consistent with the study of Deyo RA et al in which they also did not find any strong correlation between height, weight, body build and the occurrence of back pain.⁸ Jacek A et al in their study on predictors of back pain in general population cohort found strong correlation between age, height and pattern of work (especially heavy work) in men only. They did not find weight as a significant factor in both men and women.⁹

Low back pain is most prevalent between the ages 35 and 55 years⁷. The findings in our study is also similar as the most common age group was 31-40 years (20%) followed closely by age group 41-50 years (17.83%).

In our study all married people including widow/widower had significantly higher prevalence of back pain but it would be difficult to infer that marriage is associated with higher prevalence of back pain because married people are generally older than

unmarried people and people with back pain tend to be older than those without back pain. The other studies do not mention any relation of marriage to back pain.

We tried to examine the relationship between abortion and back pain and found that though the occurrence of back pain was slightly higher among those who had undergone abortion it had no statistical significance.

Many studies show that smoking is associated with back pain.^{6,8} Our study also showed higher prevalence of back pain among the smokers but statistically it was not significant. It may be because of small sample size. But Jacek et al also did not find any correlation between smoking and back pain.⁹ Smoking was not linked to back pain also in Manchester study conducted by Croft et al in 1999.¹⁰ The higher prevalence of back pain among the farmers and housewives can be understood. In our society especially in rural areas, farmers and housewives perform physical work more than non farming males. Acharya and Bennet in 1981 conducted a study in 8 villages of Nepal and found that Nepalese women spend 11.44 hours per day in working as compared to 8.34 hours per day for men.¹¹ In a study performed by Pradhan A in 2003, the prevalence of back pain among those with long working hours (more than 7 hours) was 75.8% as compared to 48.8% among those with normal working hours (upto 7 hours).¹² Kelsey et al in their study conducted in the United States stated that bulky objects and objects that required frequent lifting increase the incidence of back complaints.¹³ In our study, the lowest prevalence of back pain was found among students (30.8%) which is understandable because they were not only young but also did not have to perform hard labour.

In our study, in 70.9% of those who had back pain, it lasted for upto 15 days. Another 15.2% had back pain for 16 to 30 days i.e. 86.1% had back pain lasting upto 30 days. This means that fortunately most of the people do not suffer beyond 30 days. This finding is somewhat similar to the findings of Tamar J et al who in their longitudinal community based study of low back pain outcomes observed that 76.4% experienced back pain that lasted less than a month.¹⁴ Only 58.7% of the population with back pain sought treatment. There were several causes for this. Among the respondents with back pain, 60.5% said

that the maximum pain that they experienced was mild. Another, 36.3% thought that their pain was because of excessive exertion only whereas 15.3% thought that it was because of lifting heavy weights. But when asked specifically as to what was the cause for not seeking medical treatment, the most common answer (71.3%) was that the pain was mild and self limiting in nature. The next common answer was that they did not have time. Pradhan A, in her study conducted in Kirtipur, Nepal observed that only 17.5% of the people with back pain tried to seek medical treatment. The reasons stated by the respondents were that the pain was due to overexertion and long working day and that the doctors could not help as they could not stop working.¹²

Back pain was not a major cause of work days lost. In 81% of the population, it was less than 5 days. There are certain shortcomings of this study. First, the study cannot be generalized to the whole of Nepal as the data represent only the population of Eastern Nepal. Second the sample size of the study population was small which could make certain findings statistically insignificant.

Conclusion

Back pain is a very common complaint among the adult population in the community. Population belonging to 31-50 years age group, married status and farmers and labourers are prone to have back pain. Gender, height and weight are not associated with back pain.

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