



## Prevalence and Risk factors of Low back pain among nurses of a Medical College at Bharatpur, Nepal

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### Abstract:

**Background:** Low back pain is neither a disease nor a diagnostic entity of any sort. The term refers to pain in an area of the anatomy afflicted so often that it has become a paradigm of responses to external and internal stimuli. The prevalence of low back pain among hospital workers varies between different countries 39% in Hong Kong to 76% in the Netherlands.

**Methodology:** A descriptive cross-sectional study was conducted to assess the prevalence and associated risk factor of low back pain among nurses of College of Medical Sciences Teaching Hospital; Bhartapur, Nepal. The study was conducted from 1<sup>st</sup> July to 30th July, 2015. **Result:** In the present study, all study population were female and majorities (74.28%) of them were unmarried and 25.72% were married. The prevalence of low back pain was 75.7% among them it was observed highest (67.9%) in the age group 20-25 years. Majorities (75.47%) of nurses have

developed low back pain with standing duration of 6-8 hours. **Conclusion:** The study revealed also that occupational daily work tasks of nurses have a great impact in exposing them to this occupational hazard because of many different reasons. Firstly, the uncomfortable conditions of work caused by the lack of appropriate equipment that might protect them from ergonomic stressors, to make their work easy. Due to those uncomfortable working conditions with inappropriate materials/ equipment, nurses are often exposed to poor work postures. This may lead to overload and overuse of certain muscle stabilizers of the back, lower limbs and abdominals.

**Key words:** Activities, Body mass index, Low back pain, Posture, Risk factor, Correspondence

## **INTRODUCTION:**

Pain is an unpleasant feeling in response to stimuli that have the potential to damage or do damage the body's tissues. Low back pain is a common musculoskeletal disorder affecting 80% of people at some point in their lives. Lower back pain may be classified by the duration of symptoms as acute, sub acute and chronic. Generally pain lasting less than six weeks is classified as acute, pain lasting six to twelve weeks is sub acute, and more than twelve weeks is chronic pain. However, it is not known whether low back pain takes a progressive aggravating course, or whether a recurrent or persistent nature may be assumed. As it is supposed to be a rather slow process, the follow up should cover a long period to detect changes across time<sup>1</sup>.

Low back pain is neither a disease nor a diagnostic entity of any sort. The term refers to pain in an area of the anatomy afflicted so often that it has become a paradigm of responses to external and internal stimuli. The incidence and prevalence of low back pain are roughly the same in the all over world wherever epidemiological data have been gathered or estimates made but such pain ranks high as a cause of disability and inability to work as an interference with the quality of life<sup>2</sup>.

Hospital workers experience more occupational health problems than other professional groups, the most common being low back pain, which is the commonest reason for hospitalization amongst this group of workers.<sup>3,4,5,6,7</sup>

However, the prevalence of reported low back pain among hospital workers varies between different countries. The lifetime prevalence of low back pain is reported as 76% in the Netherlands<sup>8</sup>, 70.9% in Kuwait<sup>9</sup>, 57.7% in Tunisia<sup>10</sup>, 46% in Ireland and Nigeria<sup>11</sup> and 39% in Hong Kong<sup>4</sup>.

Besides individual factors, work activities involving joint loading, extreme flexion of the trunk, frequent heavy lifting, maintaining an awkward or static posture, bending, twisting, hard physical work and psychological stress are reported as causal factors for back injuries in a number of studies<sup>4,12,13,14,15</sup>.

Nurses frequently have to lift or transfer patients who may move suddenly and carry out repetitive procedures with incorrect or poor body posture, which subsequently cause low back pain<sup>16,17,18</sup>.

**METHODOLOGY:** A descriptive cross-sectional study was conducted to assess the prevalence and associated risk factor of low back pain among nurses of College of Medical Sciences Teaching Hospital; Bhartapur, Chitwan, Nepal. The study was conducted from 1<sup>st</sup> July to 30<sup>th</sup> July, 2015. Pretested structured questionnaire and interview technique was used to collect data. Stratified random sampling technique was used to select the study population. The estimated sample size was 70 by using the prevalence rate of low back pain of 76%<sup>8</sup> at 95% confidence interval with 10% allowable error. The data were entered and analyzed in Statistical Package for Social Science software program version 22.0.

**RESULT:** In demographic profile of present study, all study population were female and majorities (74.28%) of them were unmarried where as 25.72% were married. In the distribution of ethnic group among the nurses, maximum (45.71%) nurses were Brahmin, 32.86% were Janajati and 21.43% were Chhetri.

Maximum (52.86%) of respondents were working in Intensive Care Unit, 37.14% were in general ward and 10.00% were in Operation Theater.

**Table no.1: Distribution of age and prevalence of low back pain**

Age (in years)	Low back pain (n=70)			Total	Percentage
	Yes	Percentage	No		

Age (in years)	Low back pain (n=70)				Total	Percentage
	Yes	Percentage	No	Percentage		
<20	6	8	4	6	10	14.3
20-25	36	52	11	16	47	67.1
25-30	7	10	2	2	9	12.9
>30	4	6	0	0	4	5.7
Total	53	76	12	24	70	100.0

P-value = 0.477

Majorities (67.1%) of nurses belong to age group of 20-25 years followed by 14.3%, 12.9% and 5.7% in the age groups <20 years, 25-30 years and >30 years respectively. The mean age of the study population is 25 years. The prevalence of low back pain was 75.7% and it was observed highest in the age group 20-25 years. There was no significant difference in prevalence of low back pain according to age of the nurses since the p-value was more than 0.05.

**Table no.2: Distribution of intensity of pain and duration of pain among nurses**

Intensity of pain	Duration of pain (n=53)				Total
	1day	1week	>1week	don't recall	
Mild	6	3	3	5	17
Moderate	8	9	2	5	24
Severe	0	0	9	3	12
Total	14	12	14	13	53

p-value = 0.011

In the distribution of intensity and duration of pain among the nurses, majorities 28.94% nurses pain last over 1week, 26.31% nurses don't recall, 23.68% nurses pain last for 1 day and 21.05% nurses pain last for 1 week. The p-value equal to 0.011 for chi-square  $\chi^2 = 16.585$  at 6 degree of freedom..

**Table no.3: Distribution of anatomical location and type of low back pain among nurses**

Anatomical location of pain	Type of LBP (n=53)			Total
	Lumbago	Sciatic	Others	

Anatomical location of pain	Type of LBP (n=53)			Total
	Lumbago	Sciatic	Others	
Upper back	5	3	0	8
Lower back	17	14	5	36
R12-GFs	3	2	0	5
Back of thigh	0	3	1	4
Total	25	22	6	53

p-value = 0.358

Majorities (47.17%) have lumbago (sudden attack) pain, 41.51% have sciatic (radiating towards lower limb) pain and 11.32% have others (persistent on lower back) pain.

Regarding the anatomical location of pain 67.92% have pain over the lower back, 15.09% have pain over upper back and 9.43% and 7.54% have pain over R12-GFs and back of the thigh. There was no significant difference between anatomical location and type of low back pain since the p-value was 0.358.

**Table no.4: Distribution of standing duration with low back pain**

Standing duration (in hour)	LBP	Percentage
< 4	2	3.77
4-6	1	1.88
6-8	40	75.47
> 8	10	18.87
Total	53	100.00
P-value = 0.000		

Majorities (75.47%) of nurses have developed low back pain with standing duration was 6-8 hours, 18.87% of study population have developed low back pain if the duration of standing was more than 8 hours and 3.77% and 1.88% have developed low back pain if the duration of standing was < 4 hours & 4-6 hours respectively.

**Table no. 5: Distribution of time of pain experienced according to causes**

Time of pain	Causes of pain (n=53)	Total
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experienced	Frequently bending forward	Lifting patient	Not maintaining proper sitting posture	Over workload	
Morning	2	0	2	5	9
Afternoon	3	5	4	4	16
Evening	1	1	2	7	11
Night	2	4	3	8	17
Total	8	10	11	24	53

The maximum (44.17%) nurses had developed pain because of over workload, 20.75%, 18.87% and 15.09% of nurse had developed LBP because of not maintaining proper sitting posture, lifting patient and frequently bending forward respectively. There was significant difference in causes of pain since the p-value was 0.043. In time of pain experienced, 32.08% nurses experienced pain during night time, 30.19% during afternoon, 20.75% during evening and 16.98% during morning.

## Discussion:

The majority of study population was between 20-25 years in the present study whereas a study done by Roupa, et al. 2008 at Greece<sup>4</sup>, 30-41 years was study population. This difference may be due to the present study was conducted in the private hospital, nurses after having some experience they prefer for government job and they leave job for government and better pay and more facilities.

The present study revealed that majority of respondents (75.7%) had low back pain. This finding was consistent with a study done by Lela M., et al. 2012 at Kanombe hospital<sup>19</sup> where prevalence rate of low back pain was 78% and low back pain was significantly associated with gender and marital status.

Risk factors associated with low back pain were lifting patients, frequent bending forward, bad body posture, over workload in the present study whereas a study conducted by Chao-Kang Feng., et al. 2007<sup>20</sup> in Taiwan, the perceived physical exertion, manual transfer of patient between bed

to wheel chair and bath cart and psychological demand were associated risk factor. The result was consistent.

Majorities of (71.05%) nurses pain aggravates because of long term standing. There was a significant association between the intensity and duration of pain as p-value was 0.011 and also in the marital status and pain aggravating factor as p-value was 0.038.

Regarding the duration of low back pain; 28.94% nurses experienced pain over one week, 23.65% for one day and 21.05% for one week in the present study. These results were similar to a study done by Kyung Ja June., et al. 2009 in South Korean hospital<sup>19</sup> where 90.3% of nurses had low back pain at least once a month, 21.9% of nurses had always, 40.7% of nurses had once in a week and 27.7% of nurses had once in a month.

Majorities 68.42% respondents reported pain at lower back, 15.78% at upper back and 15.78% at R12-GFs & back of the thigh respectively in the present study whereas a study done by Abolfozl Barkhordari, et al. 2012 in Yazd University, Iran<sup>21</sup> 74.3% reported experiencing pain at least in one of their nine body regions during last year.

Majorities 44.73% of nurse's low back pain started in during the profession, 39.47% after the profession, and 13.15% before the profession. 76.31% of nurses overall standing period was 6-8 hours & 31.57% of nurses experience pain during the night time, 28.94% afternoon, 21.05% evening and 18.44% morning.

Regarding the treatment, low back pain was severe enough to visit a doctor among 39.47% nurses and is under medication in the present study whereas a study done by Mostafa A.F.Abbas., et al. 2010 in Saudi Arabia<sup>22</sup>, 57.1% visit doctor and had to take medication. Less attention to health care and lifestyles in individuals might be the possible explanation for this result.

The high rate of low back pain may be related to several factors including age, the lack of knowledge about handling and lifting of patients and equipment. Another important explanation for high low back pain in this study might be that the majority of nurses do extra work in private hospitals or second job or leisure activities.

## **Conclusion:**

The prevalence rate of low back pain was found to be 76% in the current study show the extent and impact of low back pain in nurses. The study stated that, because of pain, a number of nurses have been seen to be limited in certain activities regarding their, motions .i.e. bending forward, stooping, sitting, sleeping. The study revealed also that occupational daily work tasks of nurses have a great impact in exposing them to this occupational hazard because of many different reasons. Firstly, the uncomfortable conditions of work caused by the lack of appropriate equipment that might protect them from ergonomic stressors, to make their work easy. Due to those uncomfortable working conditions with inappropriate materials/ equipment, nurses are often exposed to poor work postures. This may lead to overload and overuse of certain muscle stabilizers of the back, lower limbs and abdominals. It might result in continuous fatigue and weakness that later alone lead to back pain.

Secondly, there is insufficient staffing that leads to heavy workload/demand, therefore the nurses experience work pressure and stress. This further leads to psychological pain of the lower back as a result of being exposed to ergonomic work stressors without rest or short breaks. Lastly, some psychosocial and non-occupational factors should be emphasized as manual handling activities.

In conclusion, it is believed that low back pain is an important problem in nurses. As “prevention is better than cure”, if all hospitals take this as their primary responsibility, back pain in nurses might be prevented or reduced. Thus, all institutions can minimize behaviors that result in these injuries by lessening back stressors through health education of the nursing staff, recruiting well-trained lift team, modern mechanical lifting equipment, and policies and procedures that clearly mandate a new method of handling patients.

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