

## Research Article

### Low Back Disability and Long Distance Travelling; A Study Among Truck Drivers

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#### Abstract |

**Background:** Low back pain is a common problem related with the musculo skeletal system. Abnormal and persistent working posture is among the major causes.

**Objective:** The objective of this study was to determine the association of Low Back Disability (LBD) with long distance travelling in truck drivers of Lahore, Pakistan.

**Methodology:** An analytical cross-sectional study was conducted among the truck drivers during the period of December 2015 to May 2016. Convenient sampling technique was adopted. A sample size of 377 was taken by Rao soft online calculator. The data was recorded on a self-structured questionnaire. Modified Oswestery low back disability index was used for level of LBD. Data was analyzed by Statistical Package for the Social Sciences (SPSS) Version 20. Chi-square test was applied to find the association between low back pain disability and travel hours.  $p$  value  $\leq .05$  was considered statistically significant

**Results:** A total of 377 truck drivers were included in the study. The age of drivers ranged from 18-67 years and travelling time of drivers, in a week ranged from 15 hours to 124 hours. The truck drivers with 1-20 years of experience of long distance travelling participated in the study.

**Conclusion:** The study concluded that there was a strong association between travelling hours and LBD.

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#### Introduction

Low back disability (LBD) is one of the most common problems related to musculo skeletal system. Almost every individual is expected to experience this dilemma during the period of life.<sup>(1)</sup> It is considered to be related with abnormal and persistent working postures. Generally, the victim of this issue experience a dull ache, throbbing and shooting pain in the lower back. Low back pain is any discomfort in the lumbar region, which involves

lumbar vertebrae, spinal disc, spinal nerves, muscles of lumbar region or organs in that region. Due to the persistent sitting posture, low back pain is very common in the population of truck drivers.<sup>(2)</sup> Prolonged and continuous sitting for several hours is a regular posture observed in truck drivers. This particular posture for long hours in a day can lead to compression and additional pressure or stress on the spine, which ultimately result in low back pain. Usually these drivers adopt this profession as a single earning hand for the entire family. Their financial

constraints compel them to work hard for extended hours posing an increased risk of developing low back pain. The truck drivers are considered as a high-risk group of low back pain due to prolonged sitting, poor posture, non ergonomic seating, jerky and repetitive movements extra load on the lumbar spine, weight lifting, twisting and vibration of the whole body.<sup>(3)</sup> The increased incidence of lumbar pain in the drivers is due to the early degeneration of spine and disorders of the intervertebral disc. It is worth mentioning that availability of relevant literature is scarce. However, the estimated prevalence of low back pain among the Indian drivers concluded in a study ranged between 40% to 69 %.<sup>(4)</sup> Low back pain is also considered as a mounting health problem in Indian context.<sup>(4)</sup> Different research studies had concluded that early spinal degenerative disease of the drivers is due to increased mechanical stress from vehicles leading to pain in the lower back.<sup>(5)</sup>

A sufficient quantity of literature is available regarding low back pain which aimed at finding the prevalence, frequency, risk factors and musculoskeletal disorders in long distance drivers.<sup>(1,6,7)</sup> However, the associational studies about LBD and travelling time among the truck drivers are deficient. Keeping in view this gap in literature the objective of this study was to determine the association of LBD with long distance travelling in truck drivers of Lahore, Pakistan. This study will provide a base line data about the LBD among long distance travelling as an occupational hazard. It will help to improve the individual life quality of drivers by fixing the weekly working hours. These measures will also improve the road safety which is another global public health concern.

## Methods

It was an analytical cross-sectional study which was completed in a period of six months from December 2015 to May 2016. The data was collected from three different goods transport companies of Lahore. These companies were randomly selected from the available online list of goods transport companies in Lahore. A sample size of 377 was taken through Rao soft online sample size calculator and participants were selected through convenience sampling.<sup>(8)</sup> The truck drivers of long routes having valid license and willing to participate in the study were included. All

participants had at least one-year experience of long distance travelling and their minimum travelling hours were 35 hours per week. Truck drivers with diagnosed low back disorder were excluded. The approval of the institutional review committee was obtained and a structured questionnaire was prepared for the collection of data. It was pre-tested and necessary changes were made accordingly. The purpose of the study was explained to the study subjects and written informed consent was obtained. Data regarding socio-demographic profile and traveling duration of the study subjects was recorded on the questionnaire. Modified Oswestry low back disability index was used to determine level of low back disability. According to this scale, patients with minimum disability can cope with most living activities and treatment is not required. The patients with moderate disability experience pain and difficulty with sitting, lifting and standing and these patients usually require conservative treatment. In patients with severe disability, activities of daily livings are affected and they require a detailed investigation along with treatment. In crippled, pain impinges all the aspects of patients life and positive intervention is required.<sup>(9)</sup> The sensitivity of this tool ranges from 0.71 to 0.87.<sup>(10,11)</sup> The collected data was organized and entered into the computer software IBM Statistical Package for Social Sciences (SPSS) version 20. It was analyzed by the use of statistical tools. Chi-square test was applied to find the association between low back pain disability and travel hours. A p-value of  $\leq .05$  was considered statistically significant.

## Results

A total of 377 truck drivers were included in the study from three different goods transport companies of Lahore. The age of participants ranged from 18 years to 67 years with mean age of  $39.73 \pm 11.28$ . Majority of the study participants (41%) aged between 38-47 years. Weekly travelling hours of the truck drivers ranged from 15 hours to 124 hours, but the majority of the study subjects (39%) were travelling between 65 to 84 hours. The working experience of these long-distance truck drivers ranged between one to 20 years. Among the study participants most of the truck drivers (44%) were having the experience of six to 10 years. The socio-demographic profile of the study participants is presented in Table 1.

**Table 1:** Socio-Demographic Profile of Study Subjects

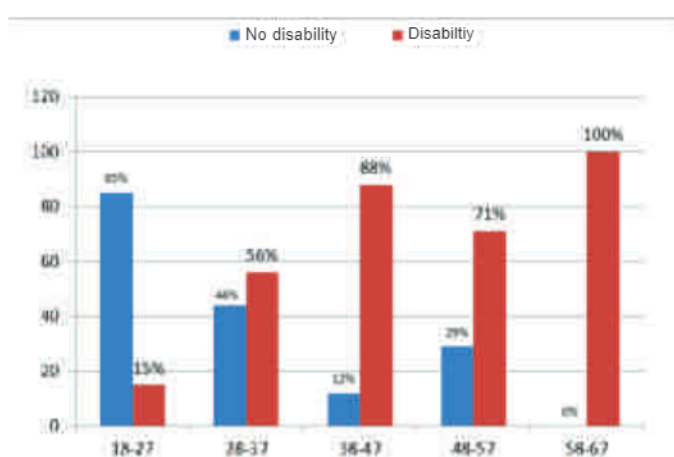
| Variable                           | Categories    | Frequency | Percentage |
|------------------------------------|---------------|-----------|------------|
| Age (n = 377)                      | 18-27 years   | 54        | 14.3       |
|                                    | 28-37 years   | 99        | 26.3       |
|                                    | 38-47 years   | 154       | 40.8       |
|                                    | 48-57 years   | 41        | 10.9       |
|                                    | 58-67 years   | 29        | 7.7        |
| Traveling hours per week (n = 377) | 15-34 hours   | 48        | 12.7       |
|                                    | 35-64 hours   | 62        | 16.4       |
|                                    | 65-84 hours   | 148       | 39.3       |
|                                    | 85-104 hours  | 79        | 21.0       |
|                                    | 105-124 hours | 40        | 10.6       |
| Driving Experience (n = 377)       | 1-5 years     | 44        | 11.7       |
|                                    | 6-10 years    | 167       | 44.3       |
|                                    | 11-15 years   | 111       | 29.4       |
|                                    | 16-20 years   | 55        | 14.6       |

Association of low back pain disability with traveling hours is presented in Table 2. It is evident from the results that the level of disability was increased with greater traveling hours. The calculated P-value of  $<0.001$  represent that there is statistically significant association of low back disability with increased travelling hours.

The results regarding LBD in different age groups are presented in Figure 1. It is obvious from these results that disability is more prevalent with the advancement of age. However, the LBD percentage of 88% among the relatively young age group of 38 to 47 years is quite high representing an association with the long distance travelling among the study group.

**Table 2:** Association of Low Back Pain Disability with Travelling Hours

| Travelling Hours | Modified Oswestery low back disability index |             |            |           |          | Total      | p-value |
|------------------|----------------------------------------------|-------------|------------|-----------|----------|------------|---------|
|                  | No Disability                                | Mild        | Moderate   | Severe    | Crippled |            |         |
| 15-34            | 40 (83.3%)                                   | 7 (14.6%)   | 1 (2.1%)   | 0 (0%)    | 0 (0%)   | 48 (100 %) | <0.001* |
| 35-64            | 50 (80.6%)                                   | 7 (11.3%)   | 3 (4.8%)   | 2 (3.2%)  | 0 (0%)   | 62 (100%)  |         |
| 65-84            | 19 (12.8%)                                   | 116 (78.4%) | 9 (6.1%)   | 4 (2.7%)  | 0 (0%)   | 148 (100%) |         |
| 85-104           | 12 (15.2%)                                   | 3 (3.8%)    | 56 (70.9%) | 8 (10.1%) | 0 (0%)   | 79 (100%)  |         |
| 105-124          | 0 (0%)                                       | 16 (40%)    | 12 (30%)   | 12 (30%)  | 0 (0%)   | 40 (100%)  |         |
| Total            | 121 (32.1%)                                  | 149 (39.5%) | 81 (21.5%) | 26 (6.9%) | 0 (0%)   | 377 (100%) |         |

**Figure 1:** Low Back Disability in Different Age Groups

## Discussion

Low back disability is a major public health problem of the human musculoskeletal system. It is commonly related with early spinal degenerative disease resulting from increased mechanical stress due to whole

body vibration by engines and vehicles. Other co factors of this musculoskeletal disorder include the inadequate seat support, fatigue of back muscles and poor body posture in different vehicle operators and drivers<sup>(5)</sup>. Prolonged and persistent sitting leads to an increased spinal loading which causes discomfort and abnormal spinal curvature. Back pain due to this reason could increase the risk of road traffic accidents. The compromised health status of the truck drivers is not a potential risk for individuals only, but it is a consistent threat to the life and safety of other road users.

This study was conducted to establish the association of long distance traveling with the LBD among the truck drivers of Lahore Pakistan. It is evident from the results that the truck drivers were traveling for exceptionally long duration (up to 124 hours per week). This finding is in accordance with the findings of a research conducted by Zeenat Hisam which concluded that road transport workers in Pakistan

struggle with low wages and long working hours<sup>(12)</sup>. It is found in the results presented in table two that there was a statistically significant association of LBD level with the increased travelling hours among the truck drivers of Lahore, Pakistan. These results are consistent with the findings of another epidemiological study conducted by Bovenzi, Rui, et al. about the low back pain among the professional drivers of Italy concluding that there is an increased risk of work related low back pain.<sup>(13)</sup> Similarly, the findings of this study are in line with the results of another relevant research by Ferreira et al, on low back pain in truck drivers of Brazil. It was found that out of 410 drivers, 242 had low back pain, while 168 did not have low back pain and the only factor related with LBP was the working hours.<sup>(14)</sup>

It is worth mentioning that degenerative spinal disease leading to LBD is an age related problem and the results presented in figure one correspond to the same information.<sup>(15)</sup> However, the LBD percentage of 88% among the relatively young age group of 38 to 47 years is quite high. These results represent an association of LBD with the long distance travelling of truck drivers among the study group. Further research is recommended for in depth exploration of these findings.

Perhaps low back pain is the most disabling work related musculoskeletal disease of the modern world.<sup>(16,17)</sup> Occupation based low back pain and disability has always been an interest of researchers. Hyder, A. A. et al, in a systemic review on health and road transport in Pakistan concluded that there is the need to establish action plan for road transport to ensure health of the workers.<sup>(18)</sup> The results of this study are supportive to suggest optimal driving hours for the truck drivers of Pakistan. Enforcing the daily hours for long driving will be helpful for the individual and road safety.

## Conclusion

Low back disability is significantly associated with the long distance traveling time. It is recommended to define and implement optimal driving hours for truck drivers. This will improve their quality of life, and the disability-oriented risk of accidents can also be minimized. Moreover, relevant health education regarding postural and ergonomic adjustment should

be provided to these drivers. Periodic medical examination by qualified health professionals is also recommended.

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## Limitation

LBD and degenerative spinal disease is an age-related issue. The wide age range of study group may be a confounder in addition to traveling time resulting in Low back disability.

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