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CHAPTER 55

Prevalence of Low Back Pain in Long Distance Truck Drivers of Mountainous Terrain.

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ABSTRACT:

The incidence of back pain in the truck drivers of mountainous areas is unknown. The occupational wellbeing and the incidence of low back pain in professional Truck Drivers were investigated regarding low back symptoms, personal, occupational, environmental, social and ergonomical factors using a well validated questionnaire. Of 200 truck drivers included, the prevalence of back pain is 73.52%.

Key words: low back pain, Truck Drivers, Questionnaire, prevalence

INTRODUCTION

Low back pain is a growing pandemic in the Indian drivers with prevalence 40% to 69% (Kumar 1999). Back pain in truck drivers is of multifactorial such as vibrations, strained postures for long hours, etc, (Laxmaiah 2000)

Sikkim, a Himalayan state is connected to the rest of India only through the National highway 31-A which is its lifeline. Throughout the year, the truck drivers of Sikkim are encountering the rough hilly terrain, hair pin bend narrow roads, adverse climatic conditions and natural calamities. The incidence of the low back pain in these high hill truck drivers is unknown.

Though earlier literature had reviewed the epidemiology of back pain in the truck drivers of plain areas, the epidemiology of back pain in drivers of hills are not stated so far. Hence the purpose of this study is to find the prevalence of low back pain in the truck drivers of Sikkim.

PARTICIPANTS & PROCEDURE:

The study was approved by Central Referral Hospital Ethical Committee, Sikkim and fully abides to Helsinki's declaration. A cross sectional survey was conducted in 200 truck drivers at their association office with the informed consent of the office secretary. But only 34 members complied with the survey and were of mean age group of 28 years. They were surveyed after the informed consent. The drivers were explained about the new modified questionnaire (Modified Oswestry - McGill back pain questionnaire) and were instructed to completed in their respective cabins blinded each other.

MODIFIED OSWESTRY MCGILL BACKPAIN QUESTIONNAIRE:

The tool used for interviewing the participants was a questionnaire which was compiled with reference to Oswestry's low back pain questionnaire and McGill's Low Back Pain Questionnaire, with suitable modification made, considering the cultural, social, environmental, and educational and the geographical factors. The questionnaire consisted of two headings. The modified questionnaire is cross validated for constructional validity by the experts of the ergonomic field and Physiotherapy (Department of Physiotherapy, Sikkim Manipal Institute of Medical Sciences and Department of Physiotherapy, STNM hospitals, Gangtok).

The first division of the questionnaire included the symptoms, predisposing factors, past history of low back pain, diurnal variations, onset, duration, severity, progression, relation of pain with rest, activities, effect of pain upon ADL's posture habits like alcoholism, smoking, diet, work hours and time spent with family.

The second division consisted of questions pertaining to road conditions, maintenance details of the vehicle (servicing, etc.), comfort issues of the sitting arrangements, Use of ergonomics aids like cushion for extra back support, footrest etc. After compilation of questionnaire, its validation was discussed with the experts and was translated into local language (Nepali) for increasing the validity of the questionnaire.

Statistical Analysis:

The results would be analyzed through **descriptive analysis**.

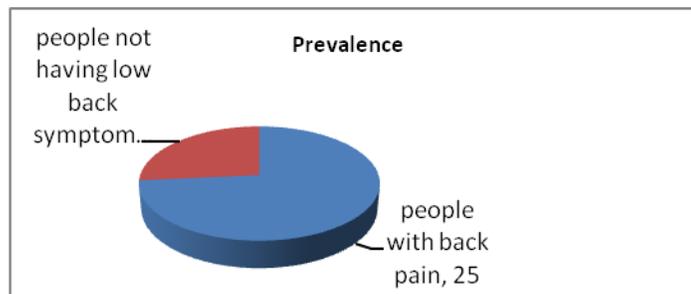
Results:

Out of 200 truck drivers from the association, only 34 complied with the research and completed the questionnaire.

1. Prevalence of back pain in truck drivers:

Among the thirty four (34) truck drivers participated, 25 were symptomatic for back pain. This can be clearly seen from the fig: 1.

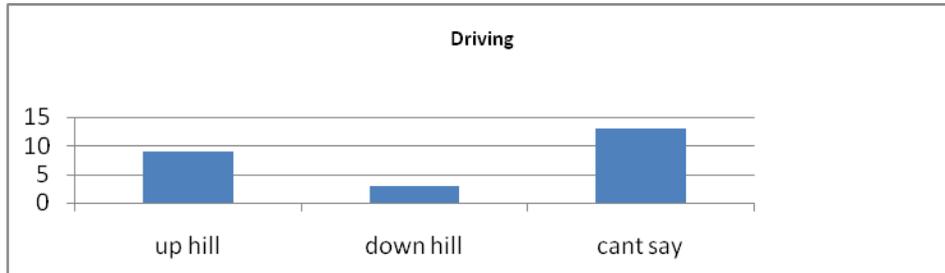
Fig. 1. Pie chart showing the prevalence of the low back pain in the truck drivers.



2. Inter individual differences in pain facilitation during driving:

Out of 25 participants having low back pain, 9 of them complained of pain during uphill driving. 3 of them experienced pain during activity downhill and 13 participants could not relate their pain with uphill and downhill driving. fig: 2.

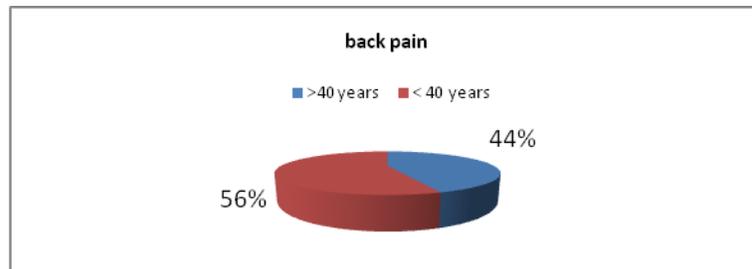
Fig. 2. Bar diagram depicting the pain demography during driving.



3. Age differences in back pain

4 out of 9 participant's experiences early morning pain and stiffness were above the age of 40 years. Fig 3 shows 44% of the total population examined suffers a back pain who above 40 years old.

Fig.3. Age related variations in incidence of back pain in truck drivers.



4. Psychological stress:

Out of 25 participants, 4 of them complained of psychological stress (fig: 4)

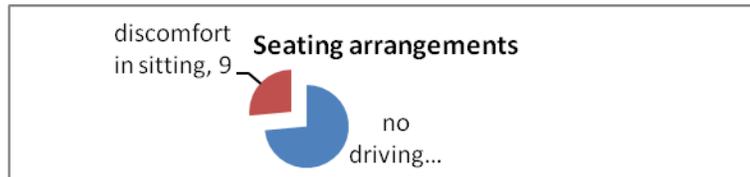
Fig.4: Bar diagram showing the drivers undergoing psychological stress.



5. Ergonomical dysfunctioning:

As for occupational factors, Out of 34 truck drivers interviewed, 9 of the drivers complained that they experiences discomfort on their driving seat (Fig. 5)

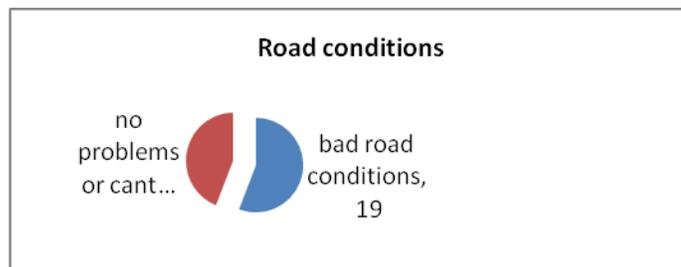
Fig. 5: Discomfort due to improper designing of the driving seats.



6. Bad rough terrain:

19 truck drivers interviewed thought that the road conditions of the daily route (N.H.31A) were bad most of the time (fig. 6).

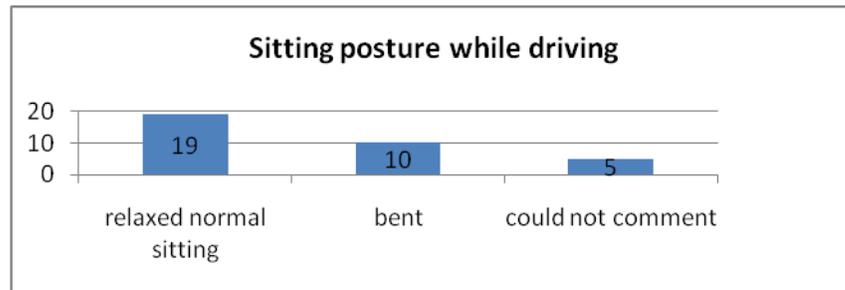
Fig.6: Pie chart showing that perception about bad road conditions.



7. Postural variations during seated driving:

19 of the 34 admitted that they assured relaxed normal sitting posture while driving, 10 of them admitted their postural dysfunction during seated driving, while 5 of them left no comments as depicted in fig. 9

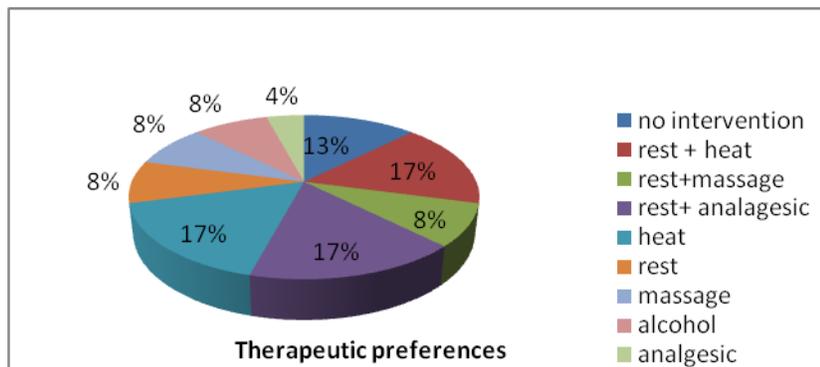
Fig.9: postural dysfunction perception during seated driving.



8. Variations in therapeutic preferences among the drivers

25 participants experienced back pain. The truck drivers preferred various therapies as noted from their questionnaires as stated in Fig: 8. 25% preferred pharmacological and 50% preferred some forms of non pharmacological therapy.

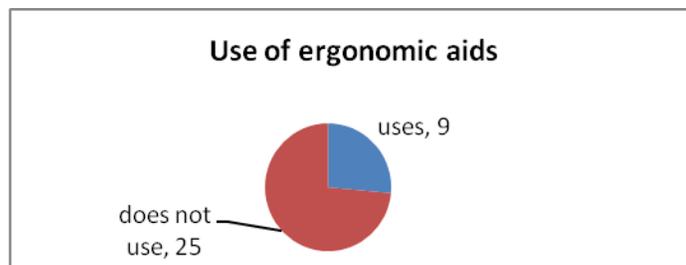
Fig.8: Therapeutic preference variations among drivers.



9. Ergonomic aids preference:

On interviewing it was evident that out of 34 drivers, only 9 used ergonomic aids like a cushion to support their lumbar spine while driving. This is depicted in fig: 9

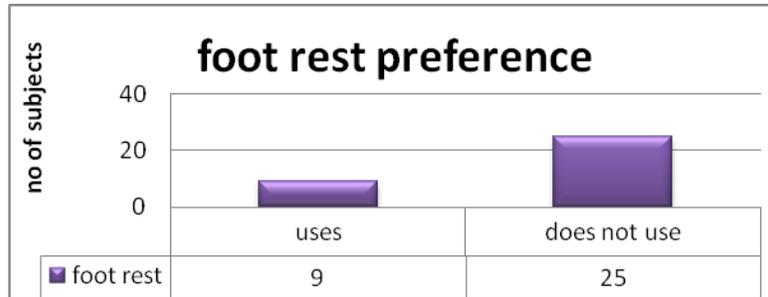
Fig.9: Ergonomic aids adapted by the drivers for their back pain.



10. Foot rest preference:

36% of the total population (9 out of 34) used foot rest ensure relaxation while driving.

Fig. 10: Foot rest preference.



DISCUSSION:

From the analysis of the results presented, it can be clearly depicted that the prevalence of the low back ache in the long route truck drivers of the National highway 31-A is 74% (fig. 1). Earlier Indian literature by Kumar Adarsh (1999) et al and Laxmaiah Manchikanti (2000) concluded that the prevalence of back pain in truck drivers is 40% – 69%. Our study’s prevalence rate is higher than that of the national prevalence rate. This may be due to the fact that earlier researches were conducted in the plain areas whereas our study included drivers of hilly areas with rough terrains.

We have found only 36% (nine of 25 symptomatic) of the subjects had morning stiffness suggesting of some degenerative changes may be due to modifiable factors like vibrations & sudden torsional forces (Kumar Adarsh 1999), prolonged seated posture (Laxmaiah 2000), frequent smoking (Jane Lyons 2002)

or due to non modifiable factors like age related degenerative changes (Jane Lyons 2002, Silvia Ferreira 2006), osteoporotic effects and malnourishment.

As we have found from our survey, 56% (fourteen out of 25 symptomatic subjects) have pain during uphill driving (fig.2). This may depict the incidence of lumbosacral radiculopathies and disc involvement in these subjects (Silvia Ferreira 2006). We did not find any remarkable changes during driving uphill or downhill. This is in accordance to earlier literature (Silvia Ferreira 2006).

As we expected, drivers who are more than 40 years of age had increased incidence of back pain than their counterparts of age less than 40 years (fig.3). Hence we confirm with the earlier literature by Jane Lyons (2002) and Silvia Ferreira (2006) that age is an important risk factor in back pain incidence in truck drivers. We suggest that the increase incidence of back pain in this aged truck drivers may due to degenerative changes, disc nutrition loss, muscle weakness, ligament laxity and osteoporotic changes as stated earlier (Silvia Ferreira 2006).

Though there is a claim that occupational psychological factors are highly associated with back pain, we have found less association between psychological factors and low back pain (fig.4). This is in contrary to the earlier established literature (Steven James Linton 2001).

Only 36% of the survey population was accessible to ergonomic aids like (foot rest and seating arrangements) as stated in fig. 9 & 10. This may depict the urgent need for the development of necessary intervention strategies for drivers by the concerned regional welfare society for the drivers and state welfare committees.

CONCLUSION:

The overall prevalence of the back pain in the truck drivers is 74%. It is on the part of welfare societies to implement transport and vehicle servicing, ergonomical modifications, strategy planning in working hours and psychological counseling.

REFERENCES:

Jane Lyons (2002). Factors contributing to low back pain among professional drivers: A review of current literature and possible ergonomic controls. *Work: A Journal of Prevention, Assessment and Rehabilitation*; Volume 19 (1); 95-102

Kumar, Adarsh M.Tech; Varghese, Mathew MS; Mohan, Dinesh PhD; Mahajan, Puneet PhD; Gulati, Praveen MD; Kale, Shashank MCh (1999) : "Effect of Whole-Body Vibration on the Low Back: A Study of Tractor-Driving Farmers in North India". *Spine* (24); 2506.

Laxmaiah Manchikanti;(2000); "Epidemiology of Low Back Pain". *Pain Physician* Volume 3(2), 167-192.

Silvia Ferreira Andrusaitis; Reginaldo Perilo Oliveira; Tarcísio Eloy P. Barros Filho ;(2006); "Study of the prevalence and risk factors for low back pain in truck drivers in the state of São Paulo, Brazil". *Clinics* vol.61 no.6 São Paulo

Steven James Linton. Occupational Psychological Factors Increase the Risk for Back Pain (2001).A Systematic Review. *Journal of Occupational Rehabilitation*: Volume 11 (1)