

Prevalence of Musculoskeletal Disorders and Psychological Problems in Intercity Train Travellers

Akshay G. Naik¹, Aishwarya Bajaj Chonkar², Medha Deo³

¹Intern, Terna Physiotherapy College, Nerul Navi Mumbai

Email: akshaynaik763[at]gmail.com

²Assistant Professor, Terna Physiotherapy College, Nerul, Navi Mumbai

Email: bajajaishwarya[at]gmail.com

³Principal, Terna Physiotherapy College, Navi Mumbai

Email: medhadeoin[at]yahoo.com

Abstract: *Background and Aims:* Indian railway is the world's largest railway system of India. Mumbai is financial capital of India so everyone is coming for work by mostly railway. Railway transportation hold a leading post in the long-distance passenger transport markets so passenger is going through some of musculoskeletal problem and psychological problem while travelling to their work. The aim of this study was to find the prevalence of musculoskeletal disorder and psychological problems in intercity train passengers. *Method:* an observational study was conducted for the duration of 1 year in long distance train travellers from intercity train with the sample size of 400 healthy adult male and female with age group of 22-60 years who are train commuters travelling long distance during peak hours and are included according to the selection criteria. Non probability sampling is taken. The data was studied and composed accordingly. *Results:* the above data was analysed and it showed lower back pain (24.7%) was most commonly affected followed by upper back pain (16.6%) and least was the elbows (3.4%). majority of passenger was stressed because of long distance travelling (31.3%) was often stressed. *Conclusion:* the study showed all travellers were having musculoskeletal pain and psychological problems due to travelling long distance and long hours too. Commonest site of pain for both males and females traveller were low back pain and upper back pain followed by neck pain and knee pain. Overall, this study suggests that there was significant psychological problem due to long hours travelling.

Keywords: Musculoskeletal Disorder, Psychological Problem, Train Traveller

1. Introduction

Indian railway is the world's largest railway system. Mumbai is the financial city of India. These kinds of cities severely depend upon public transport like rail for their work purpose and business etc. as there are many people who travel by train. Some of them travel by long distance train like intercity train. Intercity train like Panchavati Express, Godavari Express, pune intercity sf express, deccan express etc.,⁽³⁾. A musculoskeletal disorder (MSDs) is a "A disorder of muscle, tendon, joint, intervertebral disc, peripheral nerves and vascular systems not directly resulting from an acute or instantaneous event but arising gradually and chronically"⁽¹⁻⁴⁾. Train travellers face problem like repetitive movements and awkward posture, altered sitting position and prolonged standing position, which could affect the various parts in body and high force levels are the primary risk factors that have been associated with MSD's^(5-8,9-10). Passengers spend most of their time sitting, so seats affect passenger comfort most among interior facilities of the coach⁽⁴⁾. "Psychological disorders are the different mental disorders, with different presentations. They are generally characterized by a combination of abnormal thoughts, perceptions, emotions, behaviour. and relationships with others, also depression, anxiety, fear etc."⁽¹³⁾.

long distance travel can also contribute to Stress experience and sleep problems for workers and passengers⁽¹³⁻¹⁴⁾ Both men's and women with long distance travel have reported poor mental health and psychological distress⁽¹⁴⁻¹⁵⁾. Delays of train generate the second highest levels of anxiety, which

also contribute of increase frustration and stress⁽⁶⁻⁸⁻¹²⁾ and also cause physical and psychological problems, such as fatigue, anxiety, irritability, dizziness, syncope, and so on⁽¹⁴⁾. Therefore, such a problem faced by passenger's results in the loss of concentration and personal health.

2. Methodology

An observational study was conducted for the duration of 1 year in in long distance train travellers from intercity with the sample size of 400 Healthy Adult Male and Female 22-60 years of age who are train commuters. They were selected according to the selection criteria that includes commuters travelling at least travel a minimum of 3hr of a single route per day and travelling during rush hour from 7am -11 am and 4pm-9pm for a minimum 6 month. Representatives of All professionals will be included in study, such as office workers, train workers, teachers and others of all types of workers and recent surgery for less than 6 months, congenital conditions, cardiovascular and neurological conditions are excluded.

3. Procedure

The whole study was explained to the subjects. They were screened as per the inclusion criteria. Subjects not fulfilling the inclusion criteria were excluded from the study. Subjects who were willing to participate in the survey were only considered and a written consent form was taken from them. Demographic data was recorded. The self-made Questionnaire including the Nordic Questionnaire (1987) in

English and Marathi language and based on musculoskeletal disorders that includes various parameters related to musculoskeletal disorders and the self-made psychological questionnaire were given and the questionnaire was forwarded to the subject as a google form. The Data was compiled and analysed accordingly.

4. Results

Musculoskeletal Discomfort:

Result shows that lower back pain is the most reported discomfort and pain among respondents with (24.7%), followed by upper back (16.6%), Neck (14.5%), knee (10.7%). Pain and discomfort reported on the Ankle and Feet, shoulder, and Wrist and Hand, Hip and Thigh were (9.8%), (9.6%), and (5.3%),(4.7%) respectively. The least reported pain and discomfort are at the Elbow with (3.4%).

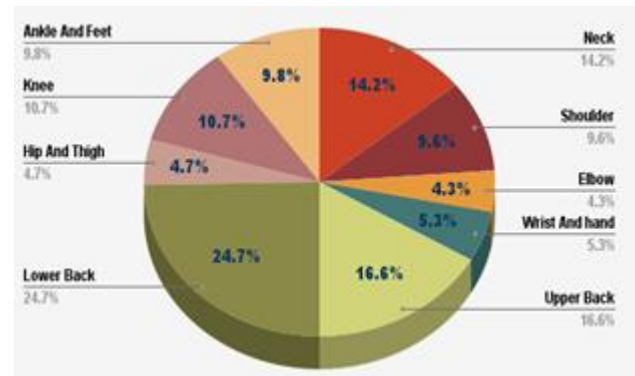


Chart 10: Musculoskeletal Discomfort

Psychological problem:

Questions	Always	Often	Occasionally	Sometimes	Never
Any difficulty in concentrating on whatever activity you have been doing at work because of travelling by train for long time?	62	149	60	84	48
Does train travel affect your sleep?	67	140	49	95	48
Does train travel affect your work ability /efficiency?	54	124	61	97	64
Does train travel affect your family responsibility?	68	142	58	61	70
Do you think you are stressed because of travelling for long hours?	64	125	59	87	65

5. Discussion

This study found that in intercity train travellers had lower back pain (24.7%), as musculoskeletal disorder which followed by upper back (16.6%), Neck (14.5%), knee (10.7%). Similar trends of reported musculoskeletal disorders were also found in another study among train commuter in local train where ankle/foot is the highest reported musculoskeletal discomfort⁽⁵⁾.

The maximum prevalence of discomfort at the lower back and upper back among intercity train commuter might be due to poor design of the sitting arrangement in chair sitting coach’s seat like affected shape of cushion and faulty backrest angle⁽⁴⁻⁵⁻¹⁰⁾ and sitting for long time produced some discomfort to lower back which increased load on spine and lumbar region also their berth seat design which leads to awkward posture. Although some of the train’s seat can be adjusted, some of the train’s having sleeper coach’s which leads to slouched sitting posture for long time.

Another study at a railway company showed that neck complains occur more often among workers within 46 – 55 years old⁽¹²⁾. Surprisingly, this study showed opposite findings with neck pain were associated with younger workers age below 30. The opposite findings might be contributed by the excessive use of technology gadget such as smartphone in train travelling was affected the among teenagers and young adult as supported by a study conducted by the British Chiropractic Association.⁽¹²⁾

In this study found that intercity train passenger had psychological problems because of long travelling time and thus affected their professional statues and personal status too. So, majority of passenger was stressed because of long

distance travelling (31.3%) was often stressed. Followed by Sometimes (21.8%) and Always (16%), Never (16.3%), Occasionally (14.8%). Passenger was stressed because of crowding also many times delayed train which cause them to delayed in their reporting time to work station and also disturbed sleeping cycle. Cox et al. (2006), who indicated crowding is a possible threat both to the rail industry and passengers⁽¹⁴⁾. This study found that many passengers was affected their sleep because of long distance train travelling (35.1%) was often affected their sleep followed by sometimes (23.8%), always (16.8%), occasionally and never (12.3%), (12.0%). Traveler was disturbing sleep because of the early reporting time and train departure timing. some studies have revealed associations between long commuting times and poor sleep quality, exhaustion, and stress (Hansson et al., 2011; Kluger, 1998)^(13,16). Also, might be delayed in going to home after work and delayed their sleeping time.

Long distance traveling also reduced their ability and efficiency in work. because of maximum traveling time, delayed train, worked stressed, personal psychological problems, any systemic other condition like cardiorespiratory, chronic condition etc. Stutzer and Frey (2008) reported that longer commuting times to work systematically decreased the commuters' life satisfaction.⁽¹⁶⁾ train travelling affected their family responsibility because of majority of commuters was daily travel through train so they were less time with their family. They were spending majority of hours out of home for work so because of that they won't be spend more time with their child and family.

6. Conclusion

The study showed all travellers were having musculoskeletal pain and psychological problems due to travelling long distance and long hours too. Commonest site of pain for both

males and females traveller were low back pain and upper back pain followed by neck pain and knee pain. Overall, this study suggests that there was significant psychological problem due to long hours travelling.

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Conflicts of interest: None

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Author Profile



Akshay Naik did this research as a part of thesis work for UG Curriculum under MUHS which author has perused from Terna Physiotherapy College, Nerul, Navi Mumbai in 2022. Currently he is perusing Masters in Physiotherapy from Government Physiotherapy School and Centre, Government Medical College, Nagpur in the subject of Musculoskeletal Physiotherapy.



Aishwarya Bajaj Chonkar is currently working as an Assistant Professor in Terna Physiotherapy College, Nerul, Navi Mumbai and have a Masters in Physiotherapy Degree in community Physiotherapy Speciality. Have an experience of 4.5 years as a professor and also the research guide and author for this thesis work.A Certified Childbirth Educator and research enthusiast.



Medha Deo is Head of Institution, Terna Physiotherapy College, Navi Mumbai for 19 years and holds a total experience of 34 years with speciality subject being Musculoskeletal Physiotherapy. Worked abroad in the USA, more than 30 publications and on the editorial board of a few journals. Also, member of Board of Study and Scientific Committee.