

The Association between passenger overloading, spinal posture changes, and work-related musculoskeletal disorders among three-wheeler drivers in Chandigarh: Reg No: 228

Shivani Shivani, Manoj Kumar, Paravreet Kaur
Panjab University

CORRESPONDING AUTHOR

Dr Shivani Shivani, Panjab University
Email: shivaniso688@gmail.com

CITATION

Shivani Shivani, Kumar Manoj, KaurParavreet. The Association between passenger overloading, spinal posture changes, and work-related musculoskeletal disorders among three-wheeler drivers in Chandigarh: Reg No: 228. Journal of the Epidemiology Foundation of India. 2025;3(2Suppl):77.

DOI: <https://doi.org/10.56450/JEFI.2025.v3i2Suppl.077>

ARTICLE CYCLE

Received: 10/11/2025; Accepted: 20/12/2026; Published: 31/12/2025

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ABSTRACT

Background: Three-wheelers are a vital mode of transport in Chandigarh, with approximately 7,440 drivers facing occupational health risks including prolonged sitting and poor ergonomics. A significant, under-observed factor is passenger overloading, which alters vehicle balance and compels drivers to adopt strained or unnatural postures. Over time, these postural deviations may increase the risk of work-related musculoskeletal disorders (WMSDs), particularly in the back and neck. **Aims & Objectives:** This study aims to investigate the association between habitual postural changes induced by passenger overloading of driving seat only and the prevalence of WMSDs among three-wheeler drivers in Chandigarh. To determine the prevalence and location of WMSDs among the study population using the Nordic Musculoskeletal Questionnaire. To assess and categorize the drivers' work habits and specific spinal posture changes associated with varying passenger loads using a standardized observation checklist and interview. To identify the socio-demographic, work duration, and overloading factors correlated with the incidence of WMSDs. **Methodology:** A cross-sectional study is being conducted among approximately 200 auto-rickshaw drivers in Chandigarh using convenience sampling. WMSD prevalence is assessed via the internationally validated Nordic Musculoskeletal Questionnaire (NMQ), while the primary exposure—passenger overloading (defined as habitually carrying >3 passengers)—is assessed via self-report. **Results & Conclusion:** Data collection and analysis are currently underway as part of an ongoing dissertation. Findings are expected to inform targeted ergonomic interventions and relevant public health policies for this occupational group to mitigate the specific postural deviations, such as hunched back or twisted spine, hypothesized to correlate with higher incidences of low back and neck pain.

KEYWORDS

Passenger, Spinal posture, Musculoskeletal