Research Article

Morbidity profile of transport sector workers and its correlation with social and work factors

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Abstract

Background: Musculoskeletal disorders consequent to demanding working conditions are not uncommon nowadays. A number of risk factors contribute to these problems thereby affecting occupational productivity. Most commonly affected are the transport sector workers, who are subjected to harsh conditions of the environment, traffic noise, pollution, difficult shifts, lack of sleep, prolonged abnormal posture, and so on. This study was undertaken to assess the social and work factors of transport sector workers, mainly drivers and conductors, in Dakshina Kannada district and to make an association between these and the morbidity status of the individuals.

Objectives: The study was undertaken to assess the type and degree of work-related musculoskeletal disorders in transport sector workers. The effect of duration in the occupation on co-morbidities present among these drivers and conductors was also analyzed. The study was also aimed at evaluating ocular symptoms in these workers.

Materials and Methods: The present study was a cross-sectional, community-based descriptive study. A total of 522 transport sector workers were included as part of the study. A prestructured, pretested, and validated questionnaire for sociodemographic details and occupational-related morbidity were used for data collection.

Results: All study subjects were male and in the age range of 21–55 years. The stressors responsible for morbidities were identified. A positive correlation was found between long working hours and ill-health. Drivers were found to have additional issues in terms of ocular symptoms. Individuals working for more than 5 years in the transport sector were found to have the most number of medical complaints.

Conclusion: Long working hours, postural strain, and exposure to noise, environmental pollution, sunlight, and dust are all factors contributing to transport sector morbidities. Drivers were found to face the maximum brunt of all these factors compared to conductors. Mental strain and stress were found to be present in all of these individuals.

KEY WORDS: Transport workers, musculoskeletal disorders, stress, obesity, occupational health

Introduction

Transport workers viz drivers and conductors are subjected to the risk of developing musculoskeletal defects among other morbidities such as ocular, gastric, and psychological disorders.[1] They face unfavorable working conditions, time pressure, bad eating habits, and lack of sleep and rest owing to shifts. The morbidities seen as a consequence can prompt earlier onset of aging of the worker, thus affecting occupational outcome.[2,3] Good job conditions and a satisfactory routine allow the maintenance of health and work ability throughout advanced age. Therefore, a systemized assessment of work ability is needed to identify possible agents associated with occupational symptoms, injuries, illnesses, and stress[3,10] so that preventative and/or corrective measures can be implemented.

The present study was undertaken to assess the type and degree of musculoskeletal disorders in transport sector

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workers. The effect of duration in the occupation on co-morbidities present was also analyzed. The study was also aimed at evaluating ocular symptoms in these workers.

Materials and Methods

The present cross-sectional study was conducted in transport depots of Dakshina Kannada district. Permission was taken from the necessary authorities and ethical clearance obtained from the Institutional ethics committee of Father Muller Medical College, Mangalore. A total of 522 drivers and conductors were included in the study as subjects. The purpose of the study was explained and written consent was obtained from the participants before enrolling them in the study. The workers who consented to participate in the study were administered a predesigned and pretested questionnaire to elicit the information of sociodemographic profile of the individual and a general health questionnaire, which included domains such as physical health, musculoskeletal disorders, ocular symptoms, gastrointestinal disorders, and stress factors. Patients with preexisting spine abnormalities were excluded from the study.

Data were entered into Microsoft Excel sheet and analyzed using SPSS 23 software. Descriptive statistics such as frequency, percentages, and inferential statistics such as the Chi-square test were used.

Results

Sociodemographic Details

All study subjects were male and in the age range of 21–55 years as shown in Table 1.

Out of the 522 individuals assessed, 359 (68.77%) were drivers and the rest 163 (31.22%) were conductors. Of these, 263 (50.38%) of the subjects were Hindus, 165 (31.6%) were Muslims and the remaining 94 (18%) were Christians as depicted in Chart 1.

Educational Status

Two hundred and sixty-five (50.76%) of the subjects had completed their secondary education (SSLC) and the remaining 257(49.23 %) had completed only their primary education or less as shown in Chart 2.

Table 1: Age of subjects

Age group	Total number
20-30 yrs	156
31-40 yrs	182
41-50 yrs	104
>50 yrs	80
Total	522

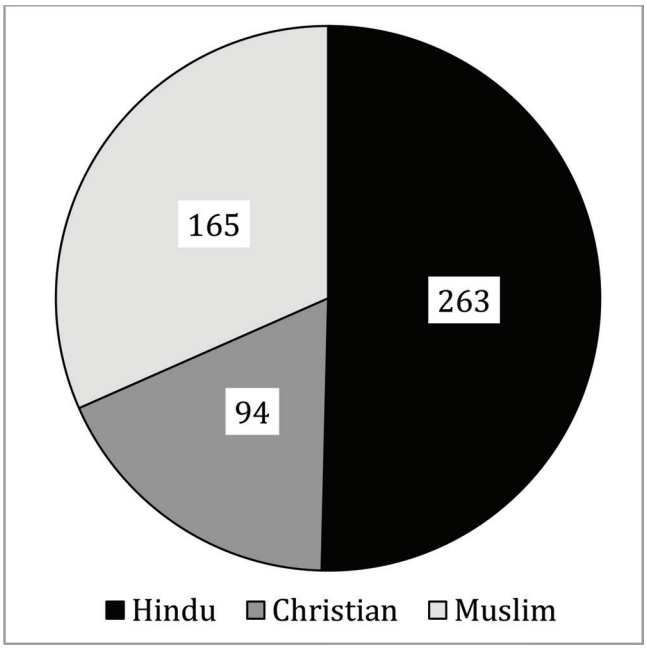

Chart 1: Distribution of subjects based on religion.

Marital Status

The number of married subjects was 398 (76.24%) as seen in Chart 3.

Work Details

Three hundred and twenty-two (61.68%) of our subjects had only day shifts, 123(23.56%) of them had only night shifts, and the remaining 77 (14.75%) had either of the two as depicted in Chart 4.

Majority of the subjects, that is. 389 (74.52%) had shifts of <12 hours on an average, while the remaining 133 (25.47%) stated that they usually had shifts extending for greater than 12 hours as shown in Chart 5.

Types of Stressors Faced

Among the study subjects, drivers were found to experience slightly varied stressors compared to the conductors as shown in Table 2.

Stressors such as postural fatigue were more among drivers, that is, 156 out of 359 drivers (43.45%) complained of postural fatigue. Similarly, the main stressor among conductors was found to be management of time schedule, that is, 121 out of 163 (74.28%) were found to complain of this factor.

Physical Health

Cardiovascular Symptoms

Cardiovascular symptoms such as chest pain and palpitations were found to be present among 149 (28.54%) and 93 (17.81%) of the subjects, respectively.

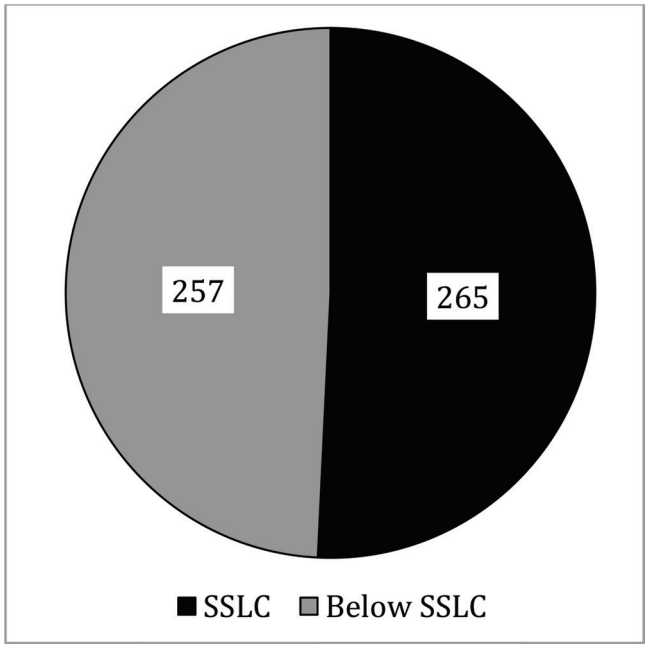

Chart 2: Distribution of study subjects according to educational status.

Chart 3: Marital status.

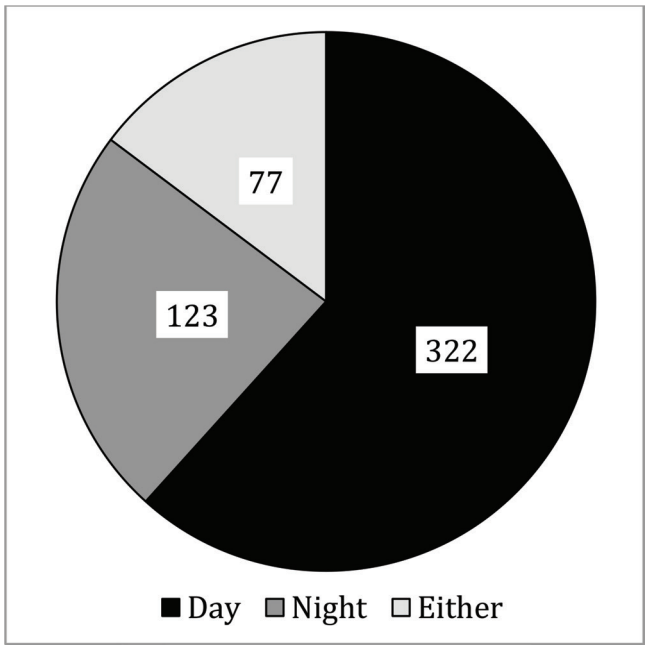

Chart 4: Work shift of study subjects.

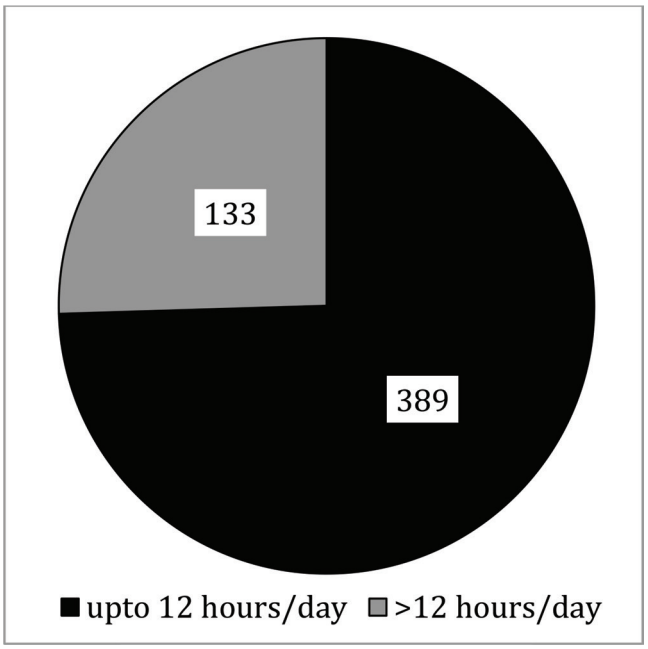

Chart 5: Working hours of study subjects**.**

Musculoskeletal Disorders

Symptoms such as leg pain, aches, and cramps were present in a majority, that is, 201 (38.5%) of the study subjects. Other symptoms suggestive of varicosities, limb edema, skin burn, and itch were also present as shown in Table 3. Neck and shoulder discomfort and pain was another widely stated complaint (15.13%).

Gastrointestinal Disorders

Gastrointestinal discomfort (19.54%), heart burn and belching (12.06%), and indigestion (2.49%) were found among a significant number of individuals.

Ocular Symptoms

Among the study subjects, drivers were found to experience more eye discomfort such as eye fatigue, blurring of

Table 2: Types of stressors faced

Stressors faced by drivers (359 out of 522) (N = 359)	**Number (n)**	**Percentage (%)**
Postural fatigue	156	43.45
Exposure to exhaust fumes	144	40.11
Traffic congestion	112	31.19
Fear of accidents	98	27.29
Fights with other drivers	32	8.9
Noise and vibration	23	6.4
Fear of being robbed/attacked	12	3.34
Stressors faced by conductors (163 out of 522) (N = 163)	**Number (n)**	**Percentage (%)**
Sticking to time schedule	121	74.23
Fatigue	96	58.89
Fights with other drivers/conductors	78	47.85
Overcrowding	59	36.19

Table 3: Physical health

		Frequency	**Percentage (%)**
Cardiovascular symptoms	Chest discomfort	149	28.54
	Palpitations	93	17.81
Musculoskeletal disorders	Leg pain, aching, cramping	201	38.5
	Varicose veins	19	3.63
	Skin burn, itch	161	30.84
	Ankle swelling	41	7.85
	Heaviness in limbs	53	10.15
	Restless legs	23	4.4
	Neck and shoulder pain	79	15.13
Gastrointestinal disorders	Gastritis	102	19.54
	Belching	63	12.06
	Indigestion	13	2.49

vision, foreign body sensation, and so on than conductors as shown in Table 4. Also, as shown in Table 5, there was a positive correlation between type of occupation and presence of ocular symptoms, that is, drivers had more ocular symptoms than conductors; $p < 0.01$.

Table 4: Ocular symptoms present among the subjects

Ocular symptoms	**Number (n)**	**Percentage (%)**
Eye fatigue	136	26.05
Eye irritation/red eye	41	7.85
Watery eyes	32	6.13
Foreign body sensation	69	13.21
Blurry vision	46	8.81
Light sensitivity	71	13.6

Environmental Influences

Chronic exposure to traffic noise leading to headaches (18.39%)and dust and toxic vehicle fumes contributing to breathing problems (25.28%) were the adverse effects of spending long hours on the road among the study subjects as shown in Table 6.

Also, occupational hazards such as standing for long durations, prolonged working hours, and lack of rest/sleep were found to be contributory toward musculoskeletal disorders as seen in Table 7. There was a positive association between duration of working hours and musculoskeletal disorders with $p < 0.01$ as seen in Table 8.

There was also a positive correlation ($p < 0.01$) between duration in that particular occupation and presence of one or more types of morbidity (physical, ocular, or mental stress)

Table 5: Association between presence of ocular symptoms and type of profession

Type of profession	Ocular symptoms		Total
	Present	Absent	
Drivers	253	106	359
Conductors	52	111	163
Total	**305**	**217**	**522**

$\chi^2 = 68.66$, DF = 1, $p < 0.01$.

Table 6: Environmental Influences

	Number (n)	Percentage (%)
Heat, sweating	302	57.85
Dust leading to breathing problems	132	25.28
Noise	112	21.45
Headaches	96	18.39

Table 7: Occupational hazards perceived

	Number (n)	Percentage (%)
Lack of rest/sleep	198	37.93
Standing for long durations	163	31.22
Prolonged working hours	113	21.64

Table 8: Association between duration of working hours and musculoskeletal disorders

Duration of work	Musculoskeletal disorders		Total
	Present	Absent	
<12 h	122	358	480
>12 h	35	7	42
Total	**157**	**365**	**522**

$\chi^2 = 61.59$, DF = 1, $p < 0.01$.

Table 9: Association of presence of one or more types of morbidity with duration in that occupation

Duration in that occupation	Morbidity		Total
	Present	Absent	
<5 years	52	97	149
>5 years	250	123	373
Total	**302**	**220**	**522**

$\chi^2 = 45.06$, DF = 1, $p < 0.01$.

with individuals who have been working in their particular field for periods greater than 5 years experiencing more problems than those who have been in that profession for a lesser duration. This is shown in Table 9.

Discussion

In our study, we found that physical health was largely affected due to various stressors among transport sector workers. This is in agreement with studies such as the one done by Morris et al., which have shown that transport sector workers, mainly drivers, are twice more likely to suffer from heart disease compared to their counterparts in other occupations, the possible cause being increased pressure and work strain and the daily exposure to traffic and the demands of following a tight schedule.[11] Obesity is another risk factor attributable to irregular eating habits, sedentary nature of work, abnormal and bad postures, smoking and tobacco chewing to relieve stress, and also environmental toxin exposure, which was found to be in accordance with the study done by Ragland et al., which showed that hypertension was much higher in their study population of transport sector workers compared to a control group.[12] Our study found that a large proportion of transport sector workers were forced to eat food from places other than their homes and experienced indigestion, heart burn, and gastritis regularly. This was in accordance with a study done by Norman et al. in which they showed that drivers were more prone to suffer from gastrointestinal disorders[13] probably owing to the irregular working patterns, shifts, and prolonged abnormal seated posture, which relaxes the abdominal muscles and is counterproductive to the process of digestion. In our study, we found that static postures as seen among drivers, and long durations of standing as seen among conductors were responsible for aggravating various spine and musculoskeletal disorders in transport sector workers. Backache and neck, shoulder, and knee pains are often reported by drivers.[14] Fatigue is another commonly reported symptom, faced by people in all occupations, but more so among transport sector workers. Prolonged work shifts, insufficient breaks, lack of adequate rest, improper dietary habits, inadequate food intake, lack of adequate sleep, and altered circadian rhythms are some of the factors that lead to increased fatigability.

The information obtained from this study focuses on the need for regular screening of transport sector workers. This reduces not just the complications of the disease for the individual concerned, but also the risks of accidents to self and others. For instance, vehicular accidents resulting from visual deterioration may be avoided through timely medical screening and treatment. The most apparent limitation of the study is its cross-sectional design. Therefore, firm conclusions about the risk factors being directly responsible for the morbidities cannot be implied. Due to various factors, such as time and finances, only self-reported symptoms were taken into account along with few basic investigations that may have missed out subclinical findings. Also, the data collection was confined to only a few transport depots in Dakshina Kannada district, which may have led to bias. The imitation of the study at multiple regions would enable better reliability of the findings of the study.

Conclusion

The objective of this study was to assess the morbidity status of transport sector workers and to evaluate the associated risk factors responsible for the same. Studies of this type can go a long way in suggesting tools that can be useful in reducing the risks and extent of these injuries. The epidemiological data collected in our study has demonstrated that occupational risk factors such as awkward postures, prolonged durations of standing, long work shifts, exposure to noise, vehicle exhaust fumes, and strong sunlight are among the risk factors that over a period of time damage the bones, joints, muscles, nerves, and blood vessels throughout the body leading to fatigue, pain, and work-related musculoskeletal disorders. Regular screening for physical strain and disease can have a tremendous effect on guiding the reduction in risks and thus, occurrence of morbidity among transport sector workers.

References

1. Fedotova IV, Bobokha MA. The influence of ergonomic characteristics of the work place on the prevalence of pain syndrome in vocational drivers. Gig Sanit 2015;94(1):72–6
2. Bellusci SM, Fischer FM. Envelhecimento funcional e condições de trabalho em servidores forenses. ***Rev. Saúde Pública*** 1999 33(6):602–9.
3. Martinez MC, Paraguay AIBB, Latorre MRDO. Relação entre satisfação com aspectos psicossociais e saúde dos trabalhadores. ***Rev. Saúde Pública*** 2004;38(1):55–61.
4. Barros MVG, Nahas MV. Comportamentos de risco, autoavaliação do nível de saúde e percepção de estresse entre trabalhadores da indústria. Rev. Saúde Pública 2001;35(6):554–63.
5. Noriega M, Gutiérrez G, Méndez I, Pulido M. Las trabajadoras de la salud: vida, trabajo y trastornos mentales.Cad Saúde Pública 2004;20(5):1361–72.
6. Costa LB, Koyama MAH, Minuci EG, Fischer FM. Morbidade declarada e condições de trabalho: o caso dos motoristas de São Paulo e Belo Horizonte***. Sao Paulo Perspec*** 2003;17(2):54–67.
7. Frone MR. Work stress and alcohol use. Alcohol Res Health 1999;23(4):284–91.
8. Metzner RJ, Fischer FM. Fadiga e capacidade para o trabalho em turnos fixos de doze horas. Rev. Saúde Pública 2001;35(6): 548–53.
9. Obelenis V, Gedgaudiene D, Vasilavicius P. Working conditions and health of the employees of public bus and trolleybus transport in Lithuania. Medicina 2003;39(11):1103–9.
10. Walsh IAP, Corral S, Franco RN, Canetti EEF, Alem MER, Coury HJCG. Capacidade para o trabalho em indivíduos com lesões músculo-esqueléticas crônicas. Rev. Saúde Pública 2004;38(2):149–56.
11. Morris JN, Heady JA, Raffle PAB, Roberts CG, Parks JW. Coronary heart disease and physical activity of work. The Lancet. 1953:2;1053–7.
12. Ragland DR, Winkleby MA, Schwalbe J, Holman B, Morse L, Syme SL, et al. Prevalence of hypertension in bus drivers. Intl J Epidemiol 1987;16:208–14.
13. Norman LG. The health of bus drivers: A study in London Transport. The Lancet 1958;2:807–12.
14. Tse JLM, Flin R, Mearns K. Bus driver well-being review: 50 years of research. Transportation Res Part F 2006;9:89–114.
15. Ragland DR, Greiner BA, Krause N, Holman BL, Fisher JM. Occupational and non occupational correlates of alcohol consumption in urban transit operators. Prev Med 1995:24:634–45.
16. Greiner BA, Raglan DR, Krause N, Syme SL. Objective measurement of occupational stress factors an example with San Francisco urban transit operators. J Occup Health Psychol 1997;2:325–42.

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