Occupational Health Hazards: A Study of Bus Drivers

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Abstract

Health has always been closely linked with occupation. Sound health in relation to vocation and employment is the most important aspect of the very life of an individual who works and to the society as a whole. Occupational hazards natural in the work environment have become more prominent in the post-industrial societies. These include a wide range of health problems ranging from asthma, heart attack, high blood pressure, stress and other psychological disorders, with many more to list. Occupational health is therefore, an aspect seeking attention at the individual, group and community levels. The related study deals with ergonomics—a link between the worker and his working environment. This would have impact on the body and discomfort reflected in various parts of the body bringing about certain health problems.

The present article is an attempt to explore the health hazards among the bus drivers and conductors employed in State Road Transport Corporations. The attempt is directed at investigating risk factors at micro-level in a community of drivers and conductors. It not only establishes the link between health and work environment but also facilitates in assessing the adverse impacts that may be expected.

Keywords

occupation, health, hazards, bus drivers, conductors

Introduction

Occupational diseases usually develop over an extended period of time. They are slow and generally cumulative in their effects, and often become complicated by non-occupational factors. They result due to constant exposure to certain process, contaminations and stress producing elements. Long term exposure to whole-body vibration and impact while driving over bumps in the roads and rough road surfaces can result in musculoskeletal problems. Bus drivers must respond to multiple demands over which they have little control. The main tasks of a bus driver and his fellow conductor are to drive safely and keep on schedule. Yet two of these tasks are inherently contradictory—maintaining the schedule and serving the public (Evans, G. 1991).

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Objectives

The article aims at examining impact of working environment on human health. Thus, the main objective is to examine the nature of health hazards among the bus drivers and conductors along with their life-style.

Study Area and Sample

The present article is limited to the bus drivers and conductors working for the State Transport Corporation and stationed at Vadodara bus depot. A sample of 50 was selected, of which 29 were drivers and 21 conductors in total. The sample was selected so that the respondents were exposed to the working condition for more than 10 years.

Methodology

The study is based on primary data collected through an interview schedule. The questions framed were both closed and open-ended so as to obtain maximum information. The suffering of body parts and body systems are characterized by various symptoms. Thus, common but prominent symptoms of disorder were listed to which respondents were asked to respond on a five-point scale. It examines health problems on a five-point scale in the areas back, neck, shoulder, hand/arm and feet/leg/thigh. Also, it studies the systemic problems with the following: Respiratory system, cardio-vascular system, central nervous system, gastro-intestinal system, eyes, ears, nose and throat (ENT).

Data Analysis

The study is based on the primary findings. Primary information collected is analyzed using descriptive statistics. All this information has been translated into the form of frequency distribution tables.

Results and Discussion

Life-Style of the Respondents

This is also an important aspect of the study as a part of their working condition demands long hours of stay away from home; food and rest are required for health. Therefore, their food as well as other habits (*pan masala*, smoking, tobacco consumption, alcohol) and their hours for rest after their working hours was also studied. A high risk of alcohol consumption is also reported (Gwande et al. 2001).

As inferred from Table 1, almost half the respondents take their lunch on road-side *dhabas* or hotels with a frequency of more than twice a week. Also other habits/addictions of smoking, pan masala alcohol and tobacco chewing are observed among the respondents.

Table 1. Life-Style of the Respondents

Life-Style	Respondents (per cent)
i) Food outside	
Snacks	34
Lunch	50
Dinner	16
ii) Frequency of eating food outside	
Once a week	10
Twice a week	5
More than twice a week	85
iii) Other Habits/Addictions	
Pan and pan masala	24
Tobacco	15
Smoking	36
Alcohol	22

Source: Author's research.

Health Problems among the Respondents

Occupational diseases usually develop over an extended period of time. They are slow and generally cumulative in their effects, and often become complicated by non-occupational factors. They result due to constant exposure to certain processes, contaminations and stress-producing elements. The design and work schedule may account for musculo-skeletal problems associated with driving a bus. Musculo-skeletal problems include back, neck and shoulder problems. Muscle cramping, pressure points and poor circulation in the legs and buttocks are other examples. Long term exposure to whole-body vibration and impacts while driving over bumps on roads and rough road surfaces can result in low back problems both for drivers and as well as conductors.

A bus driver is fundamentally constrained to the driver's cabin, which does not afford much room for flexing and movement of limbs. A static posture aggravates accumulated muscle tension with little release. This is further worsened from extended hours behind the wheel. As already established (Evans 1994, Gobel et al. 1998, Kompier & di Martino 1995, Krause et al. 1998, Winkleby et al. 1988), backache in particular is an often-reported stressor for drivers, though other areas of pain generating from the neck, shoulder and knee are also evident (Kompier 1996; Kompier & di Martino 1995). The development of musculo-skeletal disorders (MSDs) largely relate to an individual's physical development, as well as health status, psycho-social and physical (quantity and quality) load. Physical agents such as whole-body vibration coupled with static postures and frequent twisting of the spine contribute to lower back pain (Bovenzi & Zadini 1992). Neck pain has been attributed to the frequent sharp turns of the head to the left and right made while boarding passengers and driving (Anderson 1992). Psycho-social load for transit drivers independently predicts spinal injury even when physical load is taken into account (Krause et al. 1998). The psycho-social factors of job dissatisfaction, low supervisor support, high psychological demands and frequency of specific job problems (e.g., mechanical failure, inability to maintain time-tables) are predictive of spinal and neck pain (Krause et al. 1998, Krause et al. 1997).

Table 2 reveals that 98 per cent respondents suffer from asthma, followed by nose problems (94 per cent) and from similar kinds problems of the respiratory system (86 per cent). This is perhaps due to

Table 2. Health Problems and Sufferings

Health Problems	Suffering (per cent)
Back	54
Neck	84
Shoulders	88
Hands	76
Lower limbs	96
Respiratory system	86
Cardio-vascular system	62
Nervous system	74
Gastro-intestinal system	80
Eyes	68
Ear	84
Nose	94
Asthma	98
Sleeping problem	60

Source: Author's research.

inhaling dust particles for long hours of work and constant exposure to diesel. Bus drivers breathe in vehicle exhaust when readying the bus for service from their own bus engine and from surrounding traffic. (Evans et al. 1991). The other problem of high intensity encountered by the respondents is of lower limbs (96 per cent) followed by shoulders (86 per cent), back and neck (both 84 per cent), and hand (76 per cent). All these problems are related to their sitting posture and operating and controlling the steering wheel. The lower limb problem is related to work on brakes and accelerators; here the calf muscle is at risk. The shoulder problem is acute among drivers, as their job requires them to hold the steering wheel and so little rest to shoulders, whereas, among the conductors this problem was not reported. The back and neck problem is again due to the position of sitting with one's back straight, which influences neck muscles also; conductors' situation is the same, except that they stand more than drivers. The hand muscles become stiff and the respondents complain of difficulty in moving their fingers. In some cases shivering/shaking is also reported. Chen et al. (1996) have identified that long driving time and several physical and psycho-social factors are associated with high prevalence of LBP in taxi drivers. Working for long hours in non-ergonomic postures can cause fatigue, backache and pain in joints, affecting efficiency and health of the drivers.

As observed, 80 per cent respondents suffer from gastro-intestinal system trouble. This can be correlated to the habits and life-style of eating food outside, snacks, tea and water at different places on the route they travel through. This is a job that demands movement. In severe cases, it may lead to loss of appetite, pain in abdomen, jaundice, diarrhoea, etc. The cardio-vascular problems among (62 per cent) respondents may also be provoked due to food habits. On long journeys, the drivers and conductors normally eat at places where quality is not a matter of worry. The food having high content of oil and high calories, and no exercise, results in blockage of arteries. Also, it is observed that about 85 per cent, (see Table 1) eat more than twice a week out side their homes. Again, habits like consumption of alcohol, smoking, chewing, etc. are also reported by the respondents, to which deterioration in the state of health is also attributed. In severe cases, there is risk of heart attack.

The nervous system problem occurs as the drivers have to sit and concentrate in one direction—the direction of the road in moving condition. This puts them to a temporary state of hypnotism. The consequences are depression, fatigue, tremors in hands and legs, etc.

The problem of eyes (84 per cent) among the respondents can be attributed to the dust, smoke, etc. which result in reddening of eyes, burning sensation, prickling, watering, etc. The strain increases, as they have to strain their eyes on the road. Also, visual strain is complicated by lighting at night and also of the headlights of the vehicles (Kartekeyian et al. 2004).

Ear problem was found among 84 per cent respondents. This is due to noise of vehicles, horns, etc., which they are exposed to for long hours. If such conditions exist for long then they may result in partial or total hearing loss. Vehicular traffic is a major source of noise (Gupta & Mahapatra 2003). Glare from sunlight may result in eye-strain. Noise can be a source of annoyance, distraction and fatigue. It may interfere with the driver's ability to concentrate or get auditory signal from the traffic on the road.

The result reveals that 60 per cent of the respondents suffer from sleeping problems. Long hours of work, stay away from home, irregular food habits, all of these lead to the problem. This can cause disruption and result in a major accident also. Bus drivers frequently report tension, mental overload, fatigue and sleeping problems. Fatigue for drivers is usually apparent 'when an individual cannot meet self-imposed or externally imposed performance goals but is forced to continue working under adverse conditions by a sense of duty and/or the need to safeguard the lives of others' (Brown 1994, p. 299). According to Brown, four main mechanisms hinder attainment of goals for drivers.

There may be temperature problems in the bus, excessive heat in the summer or poor heating and blasts of cold air in the winter. Bus drivers breathe in vehicle exhaust when readying the bus for service, from their own bus engine, and from surrounding traffic. Bus drivers are exposed to communicable diseases such as the common cold from the public (Evans et al. 1991).

Conclusion

The study is based on perception of the health problems as encountered by the respondents (drivers and conductors) and medical inference may be needed. But however, these are probabilities which cannot be denied: that the problems suffered by the bus drivers and conductors may be attributed to the nature of work they are exposed to and the associated life-style which is an outcome of their occupation. The exposure to air and noise pollution, posture and position of their working condition, irregular food habits and other habits like smoking' etc. arise out of the occupation. A continuous stress and problems related to hysterical and inappropriate traffic regulations and management puts them to further risks of fatigue and tension. This deterioration is largely the result of traffic congestion and its associated air and noise pollution but also with the pressures of maintaining a demanding schedule in circumstances that make that task almost impossible. Stress and musculo-skeletal problems are not the only problems bus drivers face.

Research supports a number of actions to reduce work hazards, which include reduction of traffic congestion, reduction of fatigue and interference with personal life (improving work schedules) improving ergonomic design of buses (seat design, steering wheel design, etc.) and a little more comfortable space for movement for the conductors inside the bus.

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