

A Cross Sectional Study on Stress and Quality of Sleep among Long Distance Truck Drivers in South India

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Abstract

Background: Truck drivers work in extremely tough situations away from home. In India, the existing literature on truck drivers was done focusing mostly on overall health aspects such as lifestyle diseases, but very limited studies done on mental aspects of truck drivers. **Objectives:** 1) To assess the stress among long distance truck drivers 2) To determine the quality of sleep among long distance truck drivers 3) To assess sleepiness among long distance truck drivers. **Methods:** A cross sectional study was conducted among truck drivers from the truck lay by areas on the Old Madras Road. Socio demographic data was collected with the help of a pre designed pretested semi-structured schedule. To assess stress Cohen's perceived stress was used and to assess sleepiness and sleep quality Pittsburg Sleep quality index (PSQI) and Epworth Sleepiness scale was used. **Results:** Among the total 117 truck drivers more than one thirds belonged to 28-37 years age group, majority (90.6%) belonged to private sector with mean years of experience in driving being 13.14±8.51 years. Only one fourth experienced excessive daytime sleepiness but majority of truck drivers had average stress. 7.8% had poor quality sleep. **Conclusions:** This study could be considered as the initial step towards detection of stress and quality of sleep.

Keywords: truck drivers, long distance, stress, sleep quality, scale

Introduction

In India, after agriculture the sector which generated maximum employment is the Transport sector. Among which, truck drivers play a major role in transportation system carrying goods and other crucial supplying across the length and breadth of our country thus playing a pivotal role. But truck drivers work in extremely tough situations away from home, under different climatic conditions and work stress. The stress of delivering goods on time so that to get any extra incentive or full

payment takes a heavy toll on their mental health. Some existing literature shows that they drive continuously for hours even without major gap in between^[1,2].

There would be various health issues due to working environment such as obesity, smoking, low physical activity, hypertension, diabetes mellitus, stress, sleep disturbances, poor quality of sleep, alcohol and many more. In HIV/AIDS, truck drivers are considered as bridge population as they are a critical group because of their mobility with HIV. Mental health is important especially for truck drivers. Long driving hours, disturbed sleep patterns, compelling duties can have impact on mental health. Mental fatigue can lead to loss of focus on driving leading to road traffic accidents^[3-5]. According to Road accidents in India report 2018, Trucks form the third-highest group of vehicles to be involved in road mishaps (around 12.3%) and road-accident fatalities (around 15.8%) published by the Ministry of road, transport and highways^[6]. Of 151,417 road-accident deaths recorded in 2018, 10% or 15,150

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victims were drivers or passengers in trucks, data show. This is a decline from 11.6% or 17,158 of 147,913 road-accident deaths in 2017 [6,7].

A research study done by Kantar IMRB in association with Castrol India was done to understand health issues faced by truckers in 2018. According to the study, more than 50% truckers faced driving related health issues such as physical stress, lack of sleep, obesity, back pain, joint pain, neck pain, eye sight issues, loneliness, breathlessness / breathing problems, mental stress. Other important findings were: unusually long working hours, long periods away from home and family, difficult road and driving conditions, all emerged as issues impacting their health and well-being. 50% of truck drivers had trips where duration is over 12 hours and 46% drove continuously for over six hours with no break. This brings to light the stressful lifestyle of long distance commercial drivers. Maintaining mental and physical fitness is of utmost importance in the trucking industry. And yet 62% drivers had not undergone a medical checkup in the past one year [8].

In India, the existing literature on truck drivers was done focusing mostly on overall health aspects such as lifestyle diseases, STDs including HIV/AIDS. Very limited studies done on mental aspects of truck drivers. This study was thus taken up focusing mainly mental aspects such as stress, sleep disturbances and sleep quality. The aim of the present study was to study about long distance truck drivers certain areas of Bangalore.

Objectives

- 1) To assess the stress among long distance truck drivers
- 2) To determine the quality of sleep among long distance truck drivers
- 3) To assess sleepiness among long distance truck drivers.

Material and Methods

Study Design

This was a cross sectional descriptive study.

General Setting

The study was conducted in Hoskote taluka of Bengaluru rural district of the state of Karnataka with a population of 66.8 million. Bengaluru rural comprises of 4 Talukas – Devenhalli (population - 2,09,622), Doddaballapura (population - 2,99,594), Hoskote (population- 2,70,818) and Nelamangala (population -2,10,889). The terrain of the district is mainly a plain area and population of 9, 90,923. MVJ medical College and research hospital is a teaching hospital situated in Hoskote, Bengaluru rural.

Specific Setting

The study was conducted among truck drivers from the truck lay by areas on the Old Madras Road at Hoskote, Tavarekere and on the Hoskote – Malur road and on national Highway connecting Hyderabad, Chennai via Bangalore and also Inter - state borders of Andhra Pradesh, Karnataka and Tamil Nadu. The study was conducted from September 2018 to January 2019.

Study Population

Study subjects were all the truck drivers from the truck lay by areas on the Old Madras Road at Hoskote, Tavarekere and on the Hoskote – Malur road and on national Highway connecting Hyderabad, Chennai via Bangalore and also Inter - state borders of Andhra Pradesh, Karnataka and Tamil Nadu. Both private and government truck drivers who gave consent for the study were taken.

Data variables, source of data and data collection

Socio demographic data was collected with the help of a pre designed pretested semi-structured schedule. Informed consent was taken prior to the start of the study.

The following 3 scales were used in our study:

To assess stress Cohen's perceived stress was used and to assess sleepiness and sleep quality Pittsburg Sleep quality index (PSQI) and Epworth Sleepiness scale was used.

The Perceived Stress Scale (PSS) is the most widely used psychological instrument for measuring the perception of Stress. It is a measure of the degree to which situations in one's life are appraised as stressful. PSS is a 10 item scale. Items were designed

to tap how unpredictable, uncontrollable and overloaded respondents find their lives. The scale also includes a number of direct about current levels of experienced stress. The PSS was designed for use in community samples. The items are easy to understand and the response alternatives are simple.^[9,10]

Epworth Sleepiness Scale (ESS) and the Pittsburgh Sleep Quality Index (PSQI) scales are utilized as general measures of sleep health and daytime dysfunction^[11,12,13]. Both the scales have been extensively used in wide range of studies.

Epworth Sleepiness Scale (ESS) is 8 item scale. It is scale to know how likely are people to doze off or fall asleep in some situation. It requires the respondents to rate on a 4-point scale (0-3) their usual chances of having dozed off or fallen asleep. The sum of scores can range from 0 to 24. The higher the score, the higher the persons average sleep propensity in daily life or their daytime sleepiness.

Pittsburgh Sleep Quality Index (PSQI) is an effective instrument used to measure the quality and patterns of sleep in the older adult. It differentiates poor from good sleep by measuring seven domains: subjective sleep quality, sleep latency, sleep duration, habitual sleep efficiency, sleep disturbances, use of sleep medication and daytime dysfunction over the last month. The client self rates each of the seven areas of sleep. Scoring is based on a 0 to 3 scale.

Data Analysis

Data collected was coded and then spread on Microsoft Excel 2010. Data was collected and. Statistical analysis of data was conducted by using Epi Info version 3.01. Descriptive data was presented in percentages & proportions. Associations between variables were done using chi-square test. The level of significance was established with p value less than 0.05 considered statistically significant.

Ethics approval

Ethics approval was obtained from the Institutional Ethics Committee of the MVJ Medical College and research hospital, Hoskote, Bengaluru, India. Informed consent was taken from all the study subjects.

Results

A total of 117 truck drivers were interviewed and assessed for stress and sleep quality during the study period.

Age wise distribution showed that majority (37.6%) belonged to 28-37 years age group followed by 38-47 years age group (26.5%), 17.1% to 18-27 years age group, 14.5% to 49-57 years and 4.3% belonged to more than 57 years age.

With regards to type of sector they are currently working with, majority 90.6% (n=106) belonged to private sector and rest (9.4%) government sector.

The mean years of experience in driving among truck drivers was 13.14±8.51 with majority (30.8%) having 4-7 years of experience.

Three fourth (76%) had mild excessive day time sleepiness, 16.2% moderate and 7.7% severe excessive daytime sleepiness. Majority of the truck drivers (89.7%) had average stress. Low and high stress was noticed in 5.1% each respectively. Sleep quality was assessed using Pittsburgh Sleep Quality Index (PSQI) and it was found that majority (92.3%) had good quality sleep and 7.8% had poor quality sleep.

Association between age and pattern of sleepiness, pattern of stress and sleep quality was not found statistically significant with p values being 0.3, 0.5 and 0.8 respectively.

Association between type of job and pattern of sleepiness, pattern of stress and sleep quality was also not found statistically significant with p values being 0.4, 0.09 and 0.8 respectively.

There is a general assumption that longer duration of driving experience might have a definite impact on pattern of sleep, pattern of stress and sleep quality as a whole but in the present study, there was no significant association with p values 0.3, 0.6 and 0.2 respectively. In the present study, there was a pattern of study population with average stress having moderate excessive day time sleepiness but when the association between sleepiness and stress was tested, there was no statistical association with p value being 0.09.

Association between pattern of sleepiness and sleep quality was not significant statistically with p value 0.6. Association between stress and sleep quality was significant statistically with p value 0.03 indicating that higher stress levels had a definite impact on the sleep quality.

Table 1: Pattern of sleepiness based on Epworth Sleepiness scale

Pattern of sleepiness	Frequency	Percentage
Mild excessive day time sleepiness	89	76.1%
Moderate excessive day time sleepiness	19	16.2%
Severe excessive day time sleepiness	09	7.7%

Table 2: Pattern of Stress based on Perceived Stress Scale

Pattern of Stress	Frequency	Percentage
Low stress	06	5.1%
Average stress	105	89.8%
High stress	06	5.1%

Table 3: Pittsburgh Sleep Quality Index (PSQI)

Sleep Quality	Frequency	Percentage
Good quality sleep	108	92.3%
Poor quality sleep	09	7.8%

Table number 4: Association between sleepiness and stress

Sleepiness	Stress			Total	P value
	Low	Average	High		
Mild	5	81	3	89	0.095
Moderate	0	18	1	19	
Severe	1	6	2	9	
Total	6	105	6	117	

Table number 5: Association between sleepiness and sleep quality

Sleepiness	Sleep quality		Total	P value
	Good sleep quality	Poor sleep quality		
Mild	82	7	89	0.616
Moderate	17	2	19	
Severe	9	0	9	
Total	108	9	117	

Table number 6: Association between stress and sleep quality

Stress	Sleep Quality		Total	P value
	Good sleep quality	Poor sleep quality		
Low	5	1	6	0.03*
Average	99	6	105	
High	4	2	6	
Total	108	9	117	

Discussion

The present study was done to throw some insights on pattern stress and quality of sleep among long distance truck drivers in Bangalore, Karnataka.

Among the total 117 truck drivers that were interviewed more than one thirds belonged to 28-37 years age group, majority (90.6%) belonged to private sector with mean years of experience in driving being 13.14±8.51 years.

Only one fourth experienced excessive daytime sleepiness but majority of the truck drivers had average stress. Emotional stress was seen in 11.1% in de Oliveira et al., 2015^[14] study. In Garbarino et al (2017)^[15] study, depression was seen in 9.2%. Another study by Shattell et al (2012)^[16] found that anxiety (14.5%), loneliness (27.9%), depression (26.9%) and other emotional problems in 13% of their study population. Our study dealt mainly on the pattern of stress and sleep, hence other mental or psychological disorders were not mentioned in the present study.

And with regards to quality of sleep, 7.8% had poor quality sleep. Bad sleep quality was found in 17.3% in study by Guglielmi et al. (2018)^[17]. In contrast to the present study, more than half the population (56%) experienced bad quality sleep in de Oliveira et al., 2015 study. In the study done by Krishnaswamy et al (2016)^[18] on night bus drivers found that only 2 (1.1%) had significant level of daytime sleepiness. However, 10 (5.6%) drivers confessed to feeling sleepy during the day while stopping in traffic and 103 (57.2%) drivers admitted to feeling sleepy while driving at night.

In the present study, no significant association was found between pattern of sleepiness, pattern of stress and sleep quality with age, type of job and years of driving experience. But there was statistically significant association between stress and sleep quality.

A descriptive review of the current evidence on sleep and mental health in truck drivers by Garbarino S et al (2018)^[19] concluded that awareness among truck drivers of the high risk for health and safety due to (often co-existing) untreated sleep and mental health problems

is critical. Alcohol and prescribed or illicit drugs are often misused to compensate for depression, anxiety, job strain, fatigue, and social isolation. Polypharmacy and dependence increase the chance of unsafe behaviors on the road.

Souza JC et al (2005) [20] on sleep habits, sleepiness and accidents among truck drivers found that 43.2% of the drivers drove over 16 hours a day, and 2.9% worked shifts. Mean number of sleep hours/day was 5.97±1.47; 23.8% slept <5 hours; 50.9% made use of alcohol, 95.6% of caffeine, and 11.1% of amphetamines. Mean PSQI was 4.95±2.56; 35.4% had a PSQI >5. Mean ESS was 6.56±4.2; 21.7% had a score >10.

Hence the present study findings were compared in detail with other studies; some of them were in concurrence and some in contrast to the present study findings. Limited studies were done in India concerned to stress and sleep quality in India, henceforth majority of the studies discussed were from other countries.

Limitations of the study: The questionnaire was translated into local language before applying it but the self-reporting format of the study might give an under estimate of the findings or not precise because there is lack of real time monitoring and no investigations being obtained. Information was not obtained on data regarding alcohol consumption behavior, number of accidents happened if any nor any other information on other mental health related issues such as depression.

Conclusion

The present study highlights the pattern of stress, pattern of sleep and sleep quality among truck drivers in India. This study could be considered as the initial step towards detection of stress and quality of sleep. A simple questionnaire like the one used in our study could be used in the pre-recruitment process of hiring long distance truck drivers. We strongly feel that this would be a step in the right direction towards reducing the number of road traffic accidents and the fatalities associated with them.

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