



ACROSS SECTIONAL STUDY OF PREVALENCE OF OVERWEIGHT AMONG DRIVERS AND CONDUCTORS OF PURNEA-KATIHAR, KATIHAR

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ABSTRACT

Introduction- Overweight has become a major disorder affecting a large population more than any other disease in the world. To study the prevalence of overweight and obesity among drivers and conductors of Purnea- Katihar and to compare the prevalence of overweight among them the study had been undertaken in Katihar. **Material & Method-** Randomly selected 365 drivers and 370 conductors were personally interviewed using predesigned, pretested structured questionnaire, physical examination was done to measure height, weight, waist circumferences and hip circumferences, Body Mass Index was measured to assess over weight, waist circumferences and waist hip ratio were used to assess control over weight, summary figures like rates were calculated. Chi-square test was used to test the difference of prevalence between drivers and conductors. **Observation-** The study showed that in drivers 43.3% were overweight, 22.2% were obese and 23.6% were having a waist circumferences > 102 cm. Among conductors 28.1% were overweight 16.2% and 18.1% were having a waist circumference of > 102cm. **Conclusion-** The prevalence of overweight was high among drivers compared to conductors; drivers were also more over weight than conductors. These differences were found to be statically significant, considering the high prevalence of overweight among drivers and conductors, necessary preventive measures need to be promoted. Recommendation – Dietary changes and increased physical activity.

KEYWORDS

Overweight, drivers, conductors.

INTRODUCTION:

Overweight is an abnormal growth of adipose tissue due to enlargement of fat cell an increase in number of fat cells Overweight is a Chronic disease that is increasing in prevalence and is posing a serious risk of the development of various diseases like hypertension, diabetes mellitus, hyperlipidaemia, coronary heart disease, gall bladder disease, Ostio-arthritis and certain forms of cancer⁽¹⁾. In the world Health Report April 25th 2003, WHO identifies overweight and its complications among the top 10 global risks affecting today's disease and disability which accounts for 40% of Global Death^(2,3).

Overweight are the fifth leading risk of global deaths. Worldwide, obesity has more than doubled since 1980. In 2008, more than 1.4 billion adults, 20 years and old, were overweight. Of these over 200 million men and nearly 300 million women were obese. In 2012 more than 40 million children under 5 years of age were overweight. Once consider a high income country problem, overweight and obesity are now raising in low and middle income countries, particularly in urban setting. Close to 30 million overweight children are living in developing and 10 million in developed countries.⁽⁴⁾ In India, the non communicable risk factor phase 2 was carried out in the year 2007-2008, in states of Andrapradesh, Kerla, Madhyapradesh, Maharsta, Tamilnadu, Utrahand & Mizoram. The survey shows high prevalence of overweight in all age groups except in 15-24 years group. Overweight prevalence was higher among females and males and in urban areas than rural areas, low prevalence was recorded among lower level of education. (ill-literate and primary level) and in people whose occupation was connected with agriculture or manual work.⁽⁵⁾

In India 1.3 percent males and 2.5 percent females aged more than 20 years were obese in the year 2008.⁽⁶⁾ Obesity can occur at any age and generally increases with age. Infants with excessive weight gain have an increased incidence of obesity in latter life.⁽⁷⁾ Weight control is widely defined as approaches to maintaining weight within the healthy (i.e normal or acceptable) range of body mass index of 18.5 to 24.9 Kg/m² throughout adulthood (WHO expert committee 1995) it should also include prevention of weight gain of more than 5 Kg in all people. In those who are already overweight, a reduction of 5-10 percent of body weight is recommended as an initial goal.⁽⁸⁾

The Bus drivers and conductors are one such group who are at a risk of developing over weight due to nature of their profession. They form one of the largest groups of employing personnel of different caste and creed, various age groups, subjected to severe stress and strain, having irregular hours of duty, having habits like smoking and alcohol etc. Once they develop over weight they are prone to develop hypertension

coronary heart disease and stroke putting them and their road users at risk. Hence there is a need to enquire into the prevalence of overweight in the community setting of Bus drivers and conductors. It was against this back drop of importance of overweight, coupled with lack of community based studies in this subject in bus drivers and conductors that prompted us to take up the present study.

The aims and objectives of the study were to see the prevalence of overweight among bus drivers and conductors of Purnea-Katihar road, Katihar.

MATERIALAND METHOD:

1. Study, Design, Place, Duration Of Study:

A Cross sectional study on undertaken to see the prevalence of overweight among bus drivers and conductors of Purnea-Katihar road in Katihar. The study was conducted for a period of one year from Sep 2021-Aug 2022.

2. Sample Size-

The prevalence of overweight among Purnea-Katihar road, Katihar Bus drivers and conductors was not known to calculate the sample size, the prevalence was supposed to be 50% with a 10% relative error of prevalence. The sample size arrived at was 400 i.e. 400 drivers and 400 conductors, However, 365 drivers and 370 conductors participated in the study. All were males.

3. Material for data collection:

The study participants were personally interviewed using predesigned and pretested structured questionnaire. The instruments used in the study included height stand (accurate up to 1cm) measuring tape (accurate up to 1cm) weighing machine (accurate up to 0.5kg) All the instruments and techniques were initially standardised during pilot study and were regularly standardised to throughout the period of data collection. The weighing machine was also checked and corrected, if required after every 10th reading during the study period.

Body Mass index [BMI - Weight] in Kg / (height in metre)² was used to assess overweight, waist circumference and waist hip ration (WHR) were used to assess central obesity. According to WHO criteria, overweight was defined as BMI≥25, overweight was defined as BMI≥30 and over weight was defined as WHR> 1 and waist circumference ≥ 102 cm. over weight reflects an increased risk for cardiovascular disease and other metabolic complications⁽¹⁾.

The KMC Medical Ethics committee has no objection if the research work done after the consent of study population. Data was analysed

SPSS . Summary figures like rates were calculated, Chi square test was used to test the difference of prevalence of overweight between drivers and conductors.

Observation:

Drivers 400 and conductors 400 who were selected randomly 365 drivers and 370 conductors participated in the study.

The minimum age of the study participants was 26 yrs for drivers and 25 yrs for conductors and maximum age was 57 yrs for drivers and 55 years for conductors. All the study participants were males. Most of the drivers (36.7%) and conductors (34.9%) were in the age group of 40-49 years.

The present study showed that 43.3% of drivers and 28.1% of conductors were overweight. This difference among drivers compared to conductors was found to be statistically significant.(Table 1)

Table-1: Distribution of cases accordingly to BMI

Status BMI	No. of cases	
	Drivers (n=365)	conductor (n=370)
underweight (<18.5)	17(4.7%)	20 (5.4%)
Normal weight (18.5-24.99)	190(52.0%)	246 (66.5%)
overweight (>25)	158 (43.3%)	104 (28.1%)
$\chi^2 = 18.533$, $df = 2$; $p = 0.000$		

The prevalence of overweight according to WHR>1 was 21.1% among drivers and 14.1% among conductors and this difference was also statistically significant ($p=0.012$) (Table-2)

Table-2 : Distribution of cases accordingly to Waist Hip ratio

Waist hip ratio	No. of cases	
	Drivers (n=365)	Conductors (n=370)
< 1	279 (76.4%)	303 (81.9%)
> 1	86 (23.6%)	67 (18.1%)
$\chi^2=6.296$; $df = 1$; $p = 0.012$		

Similarly the prevalence of central obesity according to waist circumference (waist- circumferences ≥ 102 cm) was 23.6% among drivers and 18.1% among conductors. This difference among drivers compared to conductors was also statically significant ($p=0.069$) (Table-3)

Table-3 : Distribution of cases of according to waist circumference

Waist circumference	No. of cases	
	Drivers (n=365)	Conductors (n=370)
< 102 cm	279 (76.4%)	303 (81.9%)
> 102 cm	86 (23.6%)	67 (18.1%)
$\chi^2=3.315$; $df = 1$; $p = 0.069$		

Among the drivers and conductors who were obese, most of them were having a mixed diet.

DISCUSSION:

The present study revealed that the prevalence of overweight were 43.3% and 22.2% respectively in drivers and 28.1% and 16.2% respectively in conductors. The prevalence in this study is higher as compared to various, previous studies⁽⁹⁻¹⁴⁾ done on general population groups. These studies showed a prevalence ranging from 7% to 34%. According to the World Health Organisation (WHO), nearly 20 to 40% of adult population are affected by overweight⁽¹⁾.

In a study conducted in Taiwan by Wang and Lin⁽¹⁵⁾, the prevalence of overweight was 9.6% among urban bus drivers which is less compared to this study. However they had also observed an increased prevalence of overweight among bus drivers than the other skilled workers.

Over weight, defined by WHR>1 and waist circumferences ≥ 102 cm was seen in significant number of drivers and conductors. A WHR>1 was seen among 21.1%, drivers and 14.1% of conductors. Waist circumference ≥ 102 cm was seen in 23.6% of drivers and 18.1% of conductors. Overweight is an independent risk factor for coronary heart disease (CHD)^(16,17). This occurs both through altered secretion of adipocyte-derived biologically active substances (adipokines) including free fatty acids, adiponectin, interleukin-6, tumour necrosis factor alpha, plasminogen activator inhibitor-1 and through exacerbation of insulin resistance and associated cardio metabolic risk factor⁽¹⁸⁾.

In a study⁽¹⁹⁾ conducted in north of Iran, among urban population aged 20-70 years, the prevalence of overweight was found to be 28.3% which is comparable to this study.

In this study it was also seen that the prevalence of overweight as well as overweight was higher among drivers compared to the conductors and this difference was statistically significant. Hence drivers are more prone to develop CHD and metabolic complications. Overweight bus drivers are more likely to become fatigued than non-overweight drivers. As they spend long hours on roads, they put themselves and their road users at the risk because of road traffic accidents⁽²⁰⁾.

CONCLUSION :

Overweight are quite prevalent among bus drivers and conductors, especially among drivers. BMI is simple and effective way to screen overweight and obese person. Both WHR and waist circumference are independent tools for measurement of overweight. Timely necessary measures need to be promoted to prevent their progression and complications associated with obesity. Measures to increase physical exercise both at home and at work place should be undertaken, screening programmes to detect diabetes and hypertension should be undertaken among the overweight study participants.

Recommendation –

The control of overweight around weight reduction. This can be achieved by dietary changes and increased physical activity and a combination of both

- (a) Dietary Change- The proportion of energy dense foods such as simple carbohydrates and fats should be reduced; the fibre content in the diet should be increased through the consumption of common un-refine foods, adequate levels of essential nutrients in the low energy diets.
- (b) Increased physical activity regular physical exercise is the key to increased energy expenditure.

Limitations

1. Indirect and imperfect measurement does not distinguish between body fat and lean body mass
2. Increased abdominal fat or decreased in lean muscle mass around the hips.

REFERENCES:

1. Park K- Park's Text book of preventive and social medicine 23rd ed. Jabalpur Banarsidas Bhanot, 2015, 397-401
2. World Health Organisation- Global Burden of disease project, April 25, 2003, www.who.int/whosis/menu/cfm/path=evidence, burden
3. Deitel M - Overweight and obesity worldwide now estimated to involve 1.7 billion people. *Obese surg* 2003; 13:329-30
4. WHO (2014), obesity and overweight, fact sheet no.311, May 2014.
5. Govt. Of India (2011), National health profile 2011, Ministry of Health and Family Welfare, New Delhi.
6. WHO (2014), World Health Statistics 2014.
7. Charney, E. et al (1976). *N. Eng. J Med.*, 295:6
8. WHO (2002), International Agency for Research on Cancer, IARC handbook of Cancer prevention, weight cannot and physical Activity. IARC Press by on 2002
9. Tiwari-R, Shrivastava D, Gour N- A cross sectional study to determine (prevalence of obesity in high income group of Gwalior City, *Indian J community Med* 2009, 34- 218-22)
10. Zargar AH, Masoodi SR, Laway BA, Khan AK, Wani AL, Bashir MI, et al- prevalence of obesity in adults –an epidemiological study from Kashmir valley of Indian subcontinent, *J Assoc physicians India* 2000, 48; 1170-4.
11. Afridi AK, Khan A- Prevalence of etiology of obesity- an overview, *Pak J Nut* 2004; 3; 14-25
12. Al Maharoof F, Al – Roomi K-Obesity among adult Bahraini Population; Impact of physical activity and educational level. *Ann Saudi Med* 2001; 21; 234-7.
13. Abbas M, Khan K, Khattak M- Prevalence of obesity in relation to diet and physical work. *Pak j Nutr* 2003; 2; 234-7.
14. Khan A, Afridi AK, Safdar M- Prevalence of obesity in employees of universities health and research institutions of Peshawar. *Pak J. Nutr* 2003; 2; 182-8.
15. Wang PD, Lin RS- Coronary heart disease risk factors in urban bus drivers. *J- Public Health* 2001; 115;261-4.
16. Gopalan C- Obesity in the Indian urban middle class. *Bull Nutr Foundation India* 1998; 19;1-5.
17. Oppert Jm Charles MA, Thibult N. Bernard- G, Eschwege E, Ducimetiere P Anthropometric estimates of muscle and fat mass in relation to cardiac mortality in men; the Paris prospective study. *Am J Clin Nutr* 2002; 75;1107-13.
18. Jeans- Pierre D- Abdominal obesity, the most prevalent cause of the metabolic syndrome and related cardio metabolic risk. *Turkiye Klinileri JMed Sci* 2009; 29; 826-32.
19. Hajian-Tilaki KO, Heidari B- Prevalence of obesity, central obesity and the associated factors in urban population aged 20-70 years, in the north of Iran; a population based study and regression approach *obese Rev* 2007 ; 8 :3-10.
20. Wiegand DM, Hononmski RJ, Mc Donald SE- Commercial drivers health; a naturalistic study of body mass index, fatigue and involvement in safety critical events. *Traffic inj Prev* 2009, 10:573-9.