Research Article

Health status of auto-rickshaw drivers plying in Agra city

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Abstract

Research question: What is the health status of auto-rickshaw drivers plying in Agra city of India? **Study design:** Cross–Sectional study. **Duration of study:** March 2011 to November 2012 **Site of study:** Auto-rickshaw stand of Agra cantt railway station, Bijli ghar and Kothi meena bazar. **Study participants:** 440 Auto-rickshaw drivers plying in Agra city. **Study variables:** Age, religion, sex, education and socio-economic status of study subjects, hypertension, musculo-skeletal discomfort, etc. **Statistical analysis:** Percentage and chi-square test. **Results:** A total of 440 auto-rickshaw drivers (ARDs) were studied. Mean age of ARDs was 33.7±9.05 years.47.27% subjects had no complaints at the time of interview, while 25.45% had 1 complaint, 12.27% had 2 complaints and 15% had more than 2 complaints at the time of interview. 41.36% of the subjects had presenting complaints of ocular system; while 28.64% had complaints of respiratory system and 20.45% had complaints of nervous system. 2 most common presenting complaints of study subjects were: blurring of vision 66 (15%) and watering of eyes 46 (10.45%). Regarding diagnosis 29.1% subjects had refractive errors; while 25.45% had mild anaemia, 19.55% had musculoskeletal discomforts, 18.64% had grade I hypertension, 15.45% had lower respiratory tract infection, 12.73% had sensorineural hearing loss, 11.59% had grade II hypertension and 10.49% were overweight. **Conclusions:** As the prevalence various health complaints is quite high; there is an urgent need of regular health checkups and appropriate preventive and promotive interventions specifically those targeting ocular and respiratory system.

Keywords: Auto-rickshaw drivers, health profile, refractive errors, overweight and obesity, hypertension etc.

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INTRODUCTION

In India auto-rickshaws are main mode of public transport in urban and semi-urban areas. These auto-rickshaws are a cheap and easily available source of public transport in most of the cities. It is situated in the northern part of India. As for many other cities; the auto-rickshaws are main mode of public transport in Agra city. The environment in which drivers spend the majority of their time is polluted, noisy and dangerous[4]. Drivers are exposed to harmful environment like pollutant gases, continuous noise and whole-body vibration as well harmful lifestyle like irregularity of meals, bad posture while driving and stressful occupational conditions due to their working conditions[4]. These work-related harmful factors may be associated with various gastro-intestinal, musculo-skeletal, cardio-vascular, respiratory, hearing and other problems which can have driving safety implications[4,11]. There have been lots of studies on the health profile of long distance truck[10,11], tempo[5] and bus[7,8,16] drivers and factors influencing them; but there have been very few studies among short distance taxi[2,3,6] and auto-rickshaw drivers and that too rarely done in India[2]. So this study was planned to find the health status of auto-rickshaw drivers working in Agra city.

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MATERIAL AND METHODS

Study population: All the auto-rickshaw drivers (ARDs) working in Agra city were the study population. It was learnt that approximately 8000 auto-rickshaw drivers were working in Agra city at the time of study.

Study design: It was a cross-sectional study conducted among auto-rickshaw drivers (ARDs) working in Agra city.

Duration of study: The study was done from March 2011 to November 2012.

Site of study: The auto-rickshaw stands of Agra Cantt railway station, Bijli Ghar and Kothi Meena Bazaar were chosen as the site of study. The reason for selection of these site was the fact that most of the auto-rickshaws of city come to railway station daily and so all the auto-rickshaw drivers working in Agra city were available for participation in the study.

Methodology

All the auto-rickshaw drivers coming to these sites join the queue for ferrying the passengers or for CNG filling and wait for their turn. These auto-rickshaws usually have to wait for half an hour to 1 hour in that queue for their turn. This time was used for interview and examination of these auto-rickshaw drivers; meanwhile their number in the queue was kept intact during that period with the help of other auto-rickshaw drivers. Before interview and examination consent was taken from each subject on a consent form and purpose of study explained to them in detail. They were also explained that findings could be published in a research paper or any magazine without disclosing their identity. A separate room was arranged near these sites for conducting interviews and examinations of the study participants. Approval from institutional ethical committee was taken before commencing the study. Data collection was done by using pre-designed proforma. A pilot study was done on 40 subjects to check the feasibility of the study and to test the proforma. Sample size for the study was also calculated based on the findings of this pilot study. Before starting the interview; full co-operation of each participant was confirmed and a rapport was established. Subjects were conveniently selected after confirming that they had enough time to be interviewed and examined. Confidentiality of the study subjects were assured and maintained throughout the study. Informed consent of each study participant was taken before starting the interview. After obtaining general information including information related to their profession and sexual behaviour, every participant was subjected to thorough physical examination, clinical examination and various investigations. Each subject was specifically enquired about any musculo-skeletal discomfort (MSD) in past or at present and the history of road traffic accidents (RTAs), if any. Personal information regarding quality and duration of sleep, regularity of meals and addictions was also asked. Their knowledge and attitude regarding various sexually transmitted diseases (STDs) including HIV/AIDS was also assessed. Detailed clinical examination was done which included weight and height measurement and blood pressure (BP) recording by using standard procedures and standardized instruments. Classification of blood pressure was done using JNC-7 classification. Examination also included the assessment of visual acuity, colour blindness and hearing loss by using Snellen's chart, Ishihara chart and Tuning fork test respectively. Subjects having any minor or major illnesses were prescribed appropriate treatment at the site and if needed were asked to follow up in the out-patient department of our medical college and hospital. Any of the subjects who needed further investigations or treatment were also referred appropriately.

Statistical analysis

Percentage calculation was used for data analysis.

RESULTS

A total 440 auto-rickshaw drivers were studied. Table 1 shows age-wise distribution of auto-rickshaw drivers. Mean age of study subjects was 33.70±9.05 yrs with a range of 16-65 yrs. All 440 subjects in the present study were male. It was found that out of 440, majority of subjects were Hindus i.e. 279 (63.40%), followed by Muslims 156 (35.45%), Christian 3 (0.68%) and Sikh 2 (0.46%).None of the subject was from any other religion. Out of 440, 82 (18.64%) subjects were unmarried while 358 (81.36%) were ever married. It was found that 298(67.73%) subjects belonged to nuclear type of family; while 142(32.27%) subjects belonged to joint family which also included three generation family. It was also observed that majority of subjects were illiterate i.e. 124(28.18%) followed by just literate 116(26.36%), Primary 68 (15.46%), Middle 54 (12.27%), Secondary 42 (9.55%), Higher secondary 30 (6.82%).Only 6 (1.36%) subjects had education of graduate level or more. Majority of subjects belonged to upper lower 202 (45.91%) or lower middle 196 (44.55%) socio-economic class according to modified Kuppuswamy classification; while none of the study subject belonged to upper socio-economic class. Table 2 shows distribution of study subjects according to some significant morbid conditions in the past. Most common found morbid condition in the past was musculoskeletal discomfort; which was reported by 33.16% subjects. Other morbid conditions in past were 28.64% had eye problem, 27.5% had problem of acidity, 24.55% had malaria, 19.09% had Road Traffic Accident (RTA), 10.45% had hearing loss, 7.27% had STDs/UTI, 6.36% had hypertension and 5.91% had kidney stone, COPD and diabetes, 5.45% had hernia, 5.45% had

jaundice, 4.77% had typhoid and equal number had hemorrhoids, 1.36% had tuberculosis and equal number had hydrocele and 0.91% had bronchial asthma. Table 3 shows distribution of study subjects according to system-wise presenting complaints. The ocular system was involved in presenting complaints of 182 (41.36%) study subjects; while 128 (28.64%) subjects had complaints of respiratory system. 3 most common presenting complaints of study subjects were: Generalized body ache 102 (23.18%), headache 76 (17.27%) and backache 72 (16.36%) . Various other complaints were reported by study subjects: 8 (1.82%) subjects had numbness; while 6 subjects (1.36%) had tinnitus. 5 subjects each (1.14%) reported leg/s pain, palpitation, abdominal pain and frequent stools; while 4 subjects each (0.91%) had swelling of knee joints, mouth ulcer, pain in ear/s, other skin lesions, tooth ache and common cold. 2 subject each (0.45%) had floaters in vision, discharge from eye, nasal bleeding, nasal dryness, edema of legs, mucus in stools, skin ulcer. Table 4 shows distribution of study subjects according to number of presenting complaints. More than half of the subjects i.e. 52.73% were having one or more presenting complaint; while rest 47.27% had no complaint at the time of examination. 25.45% subjects were having one presenting complaint; while 12.27% were having two presenting complaint and rest 15% were having more than two presenting complaint. Table 5 shows distribution of study subjects according to the diagnosed morbid conditions at present. It was observed that 128 (29.1%) subjects had refractive errors, 112 (25.45%) subjects had mild anemia (Hb level = 10.4-13.9 gm%), 86 (19.55%) subjects had musculoskeletal discomforts, 82 (18.64%) subjects had grade I hypertension (SBP 140-159 mm of Hg and or DBP 90-99 mm of Hg), 68 (15.45%) subjects had lower respiratory tract infection, 56 (12.73%) subjects had sensorineural hearing loss (Rinne test positive and Weber test lateralized to better ear), 51 (11.59%) subjects had grade II hypertension (SBP ≥160 mm of Hg or DBP ≥100 mm of Hg), 46 (10.49%) subjects were overweight (BMI= 25.00-29.99 kg/m^2), 44 (10%) subjects were underweight (BMI <18.5 kg/m^2), 36(8.18%) subjects had moderate anemia (Hb level = 7.8-10.3 gm %), 31 (7.05%) subjects had acid peptic disease, 28 (6.36%) subjects had cataract, 23 (5.23%) subjects had chronic allergic conjunctivitis, 22 (4.77%) subjects had conductive hearing loss (Rinne test negative and Weber test lateralized to poorer ear), 22 (4.77%) had dental caries, 16 (3.64%) subjects had visual impairment (visual acuity in better eye <6/18-6/60), 14 (3.18%) subjects had upper respiratory tract infection and 12 (2.73%) had class I obesity (BMI= 30.00-34.99 kg/m^2).

Table 1: Age-wise distribution of study subjects (n=440)

Age group (yrs.)	Number of subjects	Percentage (%)
≤ 20 yrs.	17	3.86
21-30 yrs.	139	31.59
31-40 yrs.	156	35.46
41-50 yrs.	79	17.96
51-60 yrs.	28	6.36
>60 yrs.	21	4.77
Total	**440**	**100**

Table 2: Distribution of study subjects according to morbid conditions in the past (n=440)

Morbid condition in past	Number of subjects	Percentage
Musculo-skeletal discomforts	146	33.18
Eye problem	126	28.64
Acidity	121	27.5
Malaria	108	24.55
Injury due to road traffic accidents	84	19.09
Hearing loss	46	10.45
STDs/UTI	32	7.27
Hypertension	28	6.36
Renal stone	26	5.91
COPD	26	5.91
Diabetes	26	5.91
Hernia	25	5.68
Jaundice	24	5.45
Typhoid	21	4.77
Hemorrhoids	21	4.77
Tuberculosis	6	1.36
Hydrocele	6	1.36
Bronchial Asthma	4	0.91

Table 3: Distribution of study subjects according to system-wise presenting complaints (n=440)

System involved	Presenting complaint	No. of subjects	%
Ocular system or Eye		**182**	**41.36**
	Blurring of vision	66	15
	Watering	46	10.45
	Burning	28	6.36
	Redness	26	5.91
	Pain in eye	22	5
	Other complaints	16	3.63
Respiratory System (RS)		**126**	**28.64**
	Breathlessness	58	13.18
	Dry cough	34	7.73
	Cough with expectoration	26	5.91
	Sore Throat	24	5.45
	Nasal discharge	24	5.45
	Other complaints	18	4.09
Nervous System (NS)		**90**	**20.45**
	Headache	76	17.27
	Tingling	14	3.18
	Dizziness	12	2.73
	Other complaints	14	3.18
Musculo-skeletal system (MSS)		**86**	**19.54**
	Backache	72	16.36
	Knee pain	16	3.64
	Restricted knee movement	14	3.18
	Elbow pain	14	3.18
	Neck pain	12	2.73
	Wrist pain	12	2.73
	Shoulder pain	12	2.73
	Other complaints	10	2.27
Cardio-Vascular System (CVS)		**82**	**18.64**
	Chest Pain	56	12.73
	Other complaints	32	7.27
Gastro-intestinal system (GIT)		**76**	**17.27**
	Indigestion	31	7.05
	Heartburn	28	6.36
	Constipation	24	5.45
	Other complaints	20	4.54
Ear		**62**	**14.1**
	Hearing impairment	57	12.95
	Ear discharge	7	1.59
	Other complaints	56	12.73
Skin and appendages		**56**	**12.73**
	Itching	36	8.18
	Boils	14	3.18
	Other complaints	12	2.73
Genito-Urinary system (GUT)		**52**	**11.82**
	Burning in micturition	28	6.36
	Difficulty in micturition	26	5.91
	Frequency of micturition	24	5.45
	Pain in micturition	16	3.63
	Other complaints	10	2.27
Dental system		**46**	**10.45**
	Caries	44	10
	Toothache	4	0.91
Other complaints		**138**	**31.36**
	Generalized body ache	102	23.18
	Fever	46	10.45

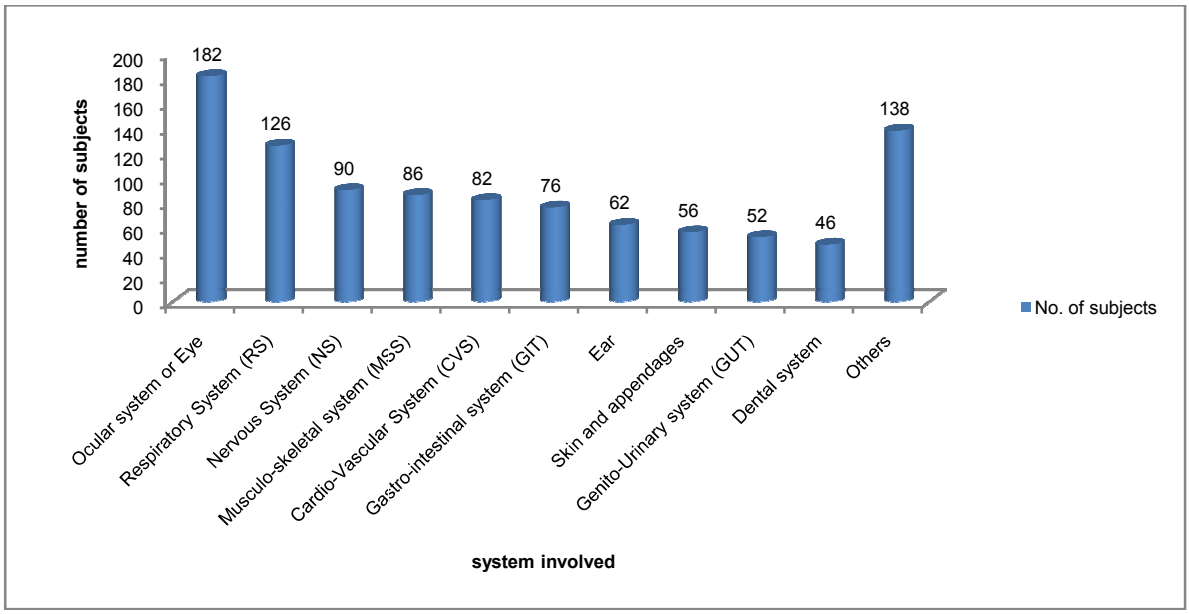
Other complaints	28	6.36

Table 4: Distribution of study subjects according to number of presenting complaints (n=440)

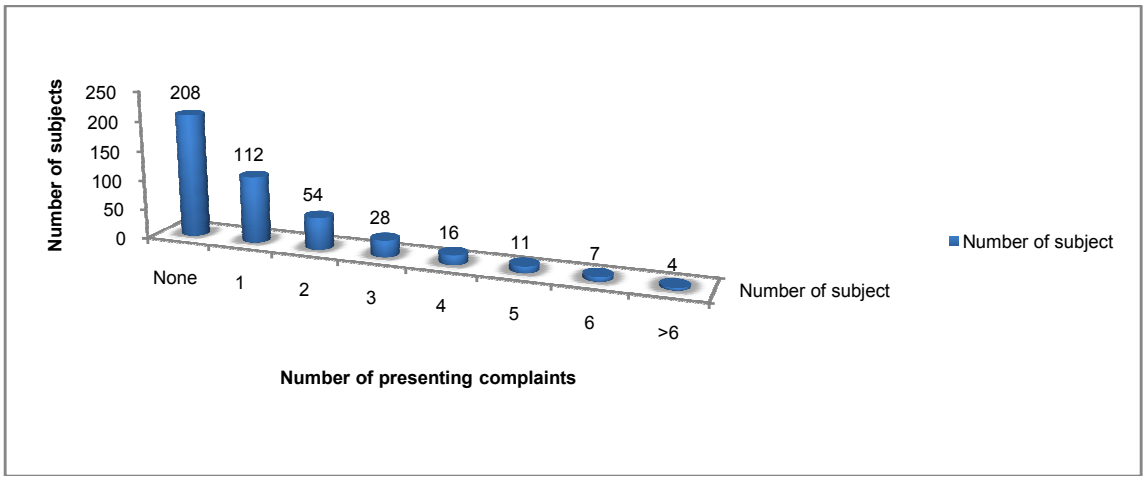
Number of complaints per subject	Number of subject	Percentage
None	208	47.27
1	112	25.45
2	54	12.27
3	28	6.36
4	16	3.64
5	11	2.5
6	7	1.59
>6	4	0.91

Table 5: Distribution of study subjects according to morbid conditions (n=440)

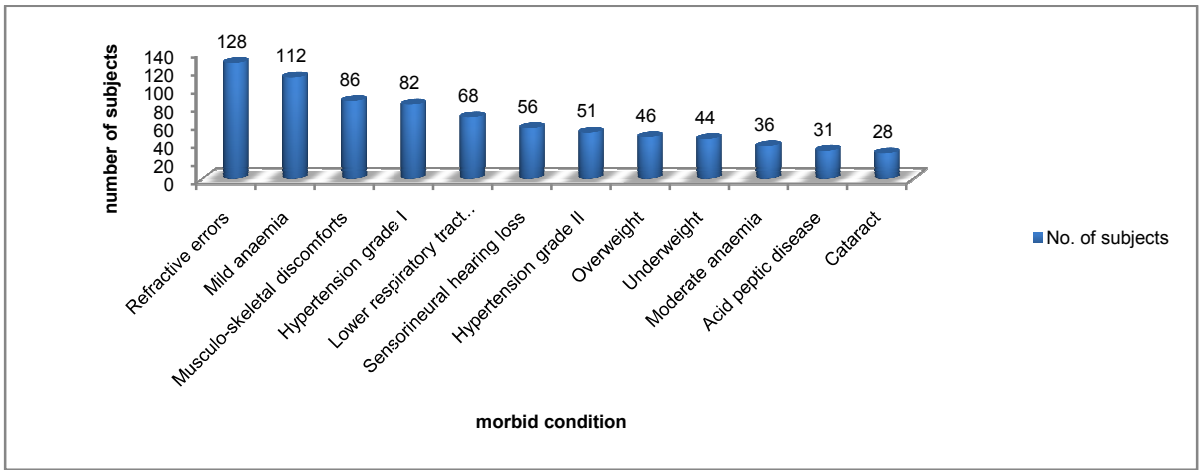
ICD code	Morbid condition	No. of subjects	%
H52.7	Refractive errors	128	29.1
D64.9	Mild anemia	112	25.45
R29.8	Musculo-skeletal discomforts	86	19.55
I10	Hypertension grade I	82	18.64
J06	Lower respiratory tract infection	68	15.45
H90.2	Sensorineural hearing loss	56	12.73
I10	Hypertension grade II	51	11.59
E66	Overweight	46	10.49
E46	Underweight	44	10
D64.9	Moderate anemia	36	8.18
K27	Acid peptic disease	31	7.05
H25.9	Cataract	28	6.36
H10.4	Chronic allergic conjunctivitis	23	5.23
H90.5	Conductive hearing loss	22	4.77
K02.9	Dental caries	22	4.77
H54	Visual impairment	16	3.64
J06	Upper respiratory tract infection	14	3.18
E66	Class I Obesity	12	2.73
H61.2	Impacted cerumen	12	2.73
N39.0	Urinary tract infection	11	2.5
H66.3	Chronic suppurative otitis media	10	2.27
J45.9	Bronchial asthma	9	2.05
H11.0	Pterygium	8	1.82
H17.9	Corneal opacity	7	1.59
A09	Acute diarrheal disease	6	1.36
K12.1	Stomatitis	6	1.36
D64.9	Severe anemia	5	1.14
I84.5	Hemorrhoids	3	0.68



Graph 1: Distribution of study subjects according to system involved in presenting complaint (n=440)



Graph 2: Distribution of study subjects according to number of presenting complaints (n=440)



Graph 3: Distribution of study subject according to morbid condition present (n=440)

DISCUSSION

41.36% of the subjects in present study had complaints of the ocular system; while 28.64% subjects had complaints of respiratory system, while 20.45% had complaints of nervous system and 19.54% subjects had complaints of musculoskeletal system while **Chaudhary S S (2007)**[2] reported that 64.53% of the ARDs had complaints of the ocular system; while 33.78% subjects had complaints of respiratory system and 25.34% subjects had complaints of musculoskeletal system. **BOKO Gbètoho M. Joachim (2003)**[1] found that 70.7% of two-wheeled vehicle taxi drivers suffered from muscular and bone affections; 62% suffered from respiratory diseases and 26.5% suffered from eye ailments. It was also found that 16.22% of the subjects had complaints of gastro-intestinal system; while **Kim I S *et al* (1989)**[6] found that 49.5% of the taxi drivers complained of gastro-enteric symptoms. **Winkleby M A *et al* (1988)**[15] found that increased diseases rates of cardiovascular diseases, including hypertension; musculoskeletal problems including back and neck pain; and gastrointestinal illnesses, including digestive problems were reported by 22 different epidemiological studies among bus drivers. These findings are similar to the findings of the present study except for the fact that very high prevalence (64%) of ocular complaints was observed in the present study. The reason for this can be the different structure of auto-rickshaws which have no doors and are open from both sides so the drivers are continuously exposed to wind, dust particles and polluting gases. The present study also found that only 208 (47.27%) auto-rickshaw drivers had no complaints at the time of interview; while **Chaudhary S S (2007)**[2] reported that only 12 (4.05%) auto-rickshaw drivers had no complaints at the time of interview; while **Kartikeyan S *et al* (2004)**[5] found that 13.96% of tempo drivers had no complaints at the time of interview and **S Sabbagh-Ehrlich *et al* (2005)**[10] found that 33.1% (53/160) of the truck driver had no health problems at the time of interview. So it is evident that more number of auto-rickshaw drivers had at least one or more health complaints than compared to other professional drivers. It was observed that 128 (29.1%) subjects had refractive errors, 112 (25.45%) subjects had mild anemia (Hb level = 10.4-13.9 gm%), 86 (19.54%) subjects had musculoskeletal discomforts, 82 (18.64%) subjects had grade I hypertension (SBP 140-159 mm of Hg and or DBP 90-99 mm of Hg), 68 (15.45%) subjects had lower respiratory tract infection, 56 (12.73%) subjects had sensorineural hearing loss (Rinne test positive and Weber test lateralized to better ear), 51 (11.59%) subjects had grade II hypertension (SBP ≥160 mm of Hg or DBP ≥100 mm of Hg), 46 (10.49%) subjects were overweight (BMI= 25.00-29.99 kg/m2), 44 (10%) subjects were underweight (BMI <18.5 kg/m2), 36(8.18%) subjects had moderate anemia (Hb level = 7.8-10.3 gm %), 31 (7.05%) subjects had acid peptic disease, 28 (6.36%) subjects had cataract, 23 (5.23%) subjects had chronic allergic conjunctivitis, 22 (4.77%) subjects had conductive hearing loss (Rinne test negative and Weber test lateralized to poorer ear), 22 (4.77%) had dental caries, 16 (3.64%) subjects had visual impairment (visual acuity in better eye <6/18-6/60), 14 (3.18%) subjects had upper respiratory tract infection and 12 (2.73%) had class I obesity (BMI= 30.00-34.99 kg/m2). **Chaudhary S S (2007)**[2] reported that Some morbid conditions found in auto-rickshaw drivers were refractive error (35.47%), mild anaemia (29.39%), musculoskeletal discomforts (25.34%), grade I hypertension (20.27%), lower respiratory tract infection (18.58%), sensorineural hearing loss (18.24%), grade II hypertension (14.86%), overweight (14.86%), under-weight (14.53%) and moderate anaemia (13.85%). **Nijole Maciulyte (2000)**[8] found that common diseases among bus drivers were bronchitis (17.27%), tonsillitis (11.24%), hypertension (11.24%), gastric and duodenal ulcer (5.62%) and other diseases (23.29%). **Kartikeyan S *et al* (2004)**[5] found that some major current health problems of tempo drivers were: musculo-skeletal aches and pains (50.54%), hyperacidity (40.86%), cough/coryza (33.34%), breathlessness (25.80%), dermatological conditions (8.60%), watering/redness of eye (3.09%), mucus in stools (2.15%) and hypertension (1.07%). **Kjeld B. Poulsen (2004)**[7] found that 70% of the bus drivers had pain in shoulder/neck, 38% had stomach aches and 8% had asthma. **S Sabbagh-Ehrlich *et al* (2005)**[10] found that common health problems among truck drivers were lower back pain (41.87%), paresthesias of legs or arms (23.75%), gastritis/peptic ulcer (15.62%), gluteal pain (14.37%), hemorrhoids (13.12%), constipation (6.25%) and hypertension (5%). **Gary Blasi *et al* (2006)**[3] found that work related medically diagnosed health problems among taxi drivers were back pain (49%), leg problems, including swollen leg and leg limp (40%), eye problem (34%), shoulder pain (30%), high blood pressure (24%) and serious weight gain/obesity (21%). Overall health problems of auto-rickshaw drivers in the present study were more or less same as compared to other professional drivers with exception of much higher ocular complaints among our study subjects.

RECOMMENDATIONS

As the prevalence of various health complaints is very high among auto-rickshaw drivers there is an urgent need of regular health checkups and appropriate preventive and promotive interventions specifically those targeting ocular and respiratory system. Further studies are also

recommended to quantify the possible risk factors for various health complaints among auto-rickshaw drivers.

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