Barriers to Uptake of Eyecare Services amongst Commercial Truck-Drivers in North India: A Cross-Sectional Survey

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Abstract

Purpose: Determining barriers to eyecare amongst commercial truck-drivers in north India.

Method: Cross-sectional survey of 90 truck-drivers, of which 3 had visited a permanent eyecare facility before. Data was collected from the remaining 87, via a structured pre-tested questionnaire assessing demographics, previous eye check-ups, and eyecare awareness.

Results: 33.3% (95% CI:23.6-44.3%; n=29/87) drivers had never felt any need to undergo eye examinations and 53 out of the 87 (60.7%; 95% CI:49.9-71.2%) were unaware of the importance of undergoing routine eye examinations. These identified barriers to uptake of eyecare services were not associated with drivers' age, education level, marital status, or distance driven. 60.3% of drivers who marked lack of awareness and 68.9% of drivers who marked unfelt need as a barrier, were either illiterate, or educated only upto primary level. Cost of availing eyecare services and available time to undergo routine eye examination were least frequently marked barriers.

Conclusion: Drivers were unaware of the importance of undergoing routine eye examinations, with younger ones feeling no need to undergo one at all. Addressing these barriers could help improve eyecare service utilization amongst truck-drivers.

Keywords: *Truck-drivers, Eyecare services, Barriers, Awareness*

Introduction

Commercial truck-drivers in India are integral to a transport sector serving over one billion people. In 2007, Indian truck-drivers numbered five to six million,[1] reportedly leading a sedentary and unhealthy lifestyle,[2] with no fixed routine and irregular sleeping patterns. This has considerably deleterious effects on the health of this mobile population.[3]

50% of Indian truckers face health problems, of which 8% are eyesight issues.[4] Visual function, is the core of both safety, and performance, aspects of driving.[5-6] Lack of adequate visual function is also prohibitive to getting a commercial drivers' license- affecting livelihoods.

Our organization, in collaboration with Eicher Motors Limited, designed and implemented an eye screening program exclusively for these truckers, to better provide services. However, program reports indicate under-utilization of these services. Thus, this study assesses barriers to uptake amongst these truck-drivers. This knowledge would help program planners design interventions specific to truck-drivers' occupational situation and needs.

Methods

This prospective cross-sectional survey was conducted from January-April 2019, at transport hubs, workshops, local street-side restaurants, petrol pumps, transport unions, driver training institutes and parking areas. The pre-tested survey questionnaire was administered by a trained interviewer in the local language. All truck-drivers who gave informed consent were included. The study adheres to the tenets in the Declaration of Helsinki.

The study tool was developed with the help of experienced program managers and literature review. As per literature, the most common reported barriers to eyecare were cost,[7-12] trust,[8] lack of time,[9] unfelt need,[9,11-12] provider accessibility,[7-8,12] and awareness. The questionnaire encompassed seven demographic questions, three questions assessing awareness about eyecare, and four questions ascertaining previous eye check-ups. It was piloted on 30 in-house drivers not included in the final analysis.

Proportions were compared across categories through Chi-square test or Fisher's exact test using SPSS version 24. Further, cross-tabulation was done between barriers identified and drivers' demographics.

Results

90 drivers were administered the questionnaire, of which 87 had never visited a permanent eyecare facility. These 87 drivers were included in the barrier study.

Detailed demographics of these 87 drivers are given in Table 1. 74.7% (n=65/87) were below 35-years of age, and 25.3% (n=22/87) were of age 36 or above. The majority of drivers were either illiterate (18.4%) or educated upto primary level (47.1%), married (63.2%) and used to driving long haul (78.2%). In one tour, almost half the drivers were driving 16-30 days, and more than a quarter driving 8-15 days. Moreover, over a third of these drivers, covered more than 300 kilometers per day, with 62.1% reporting a resting time of less than 6 hours between consecutive days.

The barriers reported by the truck-drivers have been depicted in Figure 1. 60.7% reported lack of awareness (95% CI:49.9-71.2%; n=53/87) and 33.3% reported unfelt need (95% CI:23.6-44.3%; n=29/87) as the most common barriers. Out of the 5 drivers who reported time and cost as barriers, three drivers mentioned eye camps as sources of awareness, while the other two mentioned fellow drivers (one), and awareness sessions (one) as media of information regarding routine eye examinations.

The majority of both the illiterate drivers, and drivers who were educated till primary level, were unaware of the importance of routine eye screening (56.25% and 56.1%, respectively). The difference in awareness, across education levels was found insignificant. 68.9% of drivers who marked unfelt need as a barrier, were either illiterate or only educated upto primary level (Table 2).

Amid the married drivers, 60% (n=33/55) were unaware, 34.5% (n=19/55) reported unfelt need, and 5.5% (n=3/55) had time concerns. Within the unmarried drivers, 62.5% (n=20/32) were unaware, 31.25% (n=10/32) marked unfelt need, 3.1% (n=1/32) had time concerns, and 3.1% (n=1/32) had avoided eye examinations due to associated costs.

The majority (60%) of drivers below 35-years of age did not feel the need to undergo routine eye examinations, while the majority (63.6%) of drivers aged more than 35-years of age, lacked awareness regarding eyecare (Table 3). This difference was also found to be insignificant (p=0.63).

Lastly, comparing short and long-haul drivers, 61.7% of the short distance drivers were unaware, as compared, to 57.8% of the long-haul drivers (p=0.75). Further, 29.4% of the former and 6.7% of the latter, reported unfelt need for eye examinations. This difference was also insignificant (p=0.29).

Table 1: Demographics of truck-drivers

	Category	Frequency (%)
Education	Illiterate	16 (18.4)
	Primary	41 (47.1)
	10th	27 (31.0)
	12th	03 (3.4)
Marital Status	Married	55 (63.2)
	Unmarried	32 (36.8)
Type of Driving	Long-haul	68 (78.2)
	Short Distance	19 (21.8)
Duration of tour (Days)	< 7	19 (21.8)
	8-15	25 (28.7)
	16-30	41 (47.1)
	> 30	02 (2.3)
Total run/day (Kilometers)	200-300	29 (33.3)
	301-400	28 (32.2)
	401-500	15 (17.2)
	> 500	15 (17.2)
Resting time (Hours)	3-4	25 (28.7)
	5-6	29 (33.3)
	7-8	06 (6.9)
	> 8	27 (31.0)

Table 2: Cross-tabulation of education and barriers to eyecare

Education	Lack of Awareness (%)	Unfelt Need (%)	Cost (%)	Time (%)	Total
Illiterate	09 (56.3%)	06 (37.5%)	0 (0%)	1 (6.3%)	16
Primary	23 (56.1%)	14 (34.1%)	1 (2.4%)	3 (7.3%)	41
Secondary	19 (67.9%)	09 (32.1%)	0 (0%)	0 (0%)	28
Senior Secondary	02 (66.7%)	01 (33.3%)	0 (0%)	0 (0%)	03
Total	53 (60.9%)	29 (33.3%)	1 (1.1%)	4 (4.6%)	87

Table 3: Cross-tabulation truck-drivers' age and barriers to eyecare.

Age (Years)	Lack of Awareness (%)	Unfelt Need (%)	Cost (%)	Time (%)	Total
21-35	22 (33.8%)	39 (60%)	1 (1.5%)	2 (3.1%)	65
36-50	7 (31.8%)	14 (63.6%)	0 (0%)	1 (4.5%)	22
>50	0 (0%)	0 (0%)	0 (0%)	1 (100%)	1
Total	28 (32.2%)	53 (60.9%)	1 (1.1%)	4 (4.6%)	87

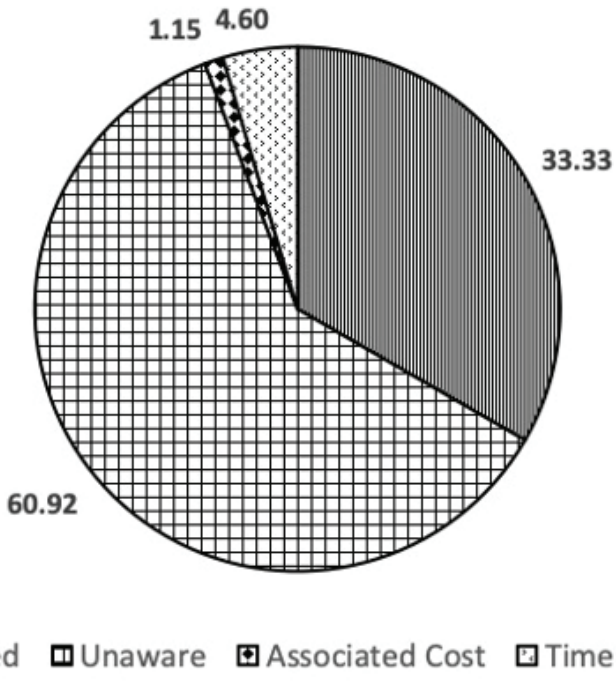

Figure 1: Barriers reported by truck-drivers (In Percentage)

Discussion

This study highlights the need of awareness about necessity of routine eye examinations amongst truck-drivers. 60.7% of surveyed drivers cited being unaware as the primary reason behind not getting their eyes examined, while unfelt need was the second most commonly reported barrier (33.3%). Only 8 of 90 drivers were aware regarding the need of eye check-ups, and of those only 3 had ever visited. Additionally, demographic factors-age, education, marital status and distance driven, were found not to be significantly associated with the barriers.

Global health issues of truck-drivers have been reported on extensively earlier, ranging from chronic, systemic conditions and occupational hazards, to even psychosocial problems.[2,3,13-17] However, literature on eyecare amongst truck-drivers, particularly in India, has focused on prevalence and types of refractive errors.[18-19] While a report does discuss spectacle usage by this mobile population,[20] our study would be the first of its' kind, both globally, and in India, to assess barriers to eyecare services for truck-drivers.

An earlier study amongst the general south Indian population reported unfelt need and cost as the most common barriers to uptake of eyecare services.[9] The former was reiterated in another south Indian study conducted seven years later, alongwith old age.[12] However, both these studies had a large proportion of participants over the age of 60-years, both male and female, while our study had men, mostly under 35-years of age. Although our study results did not show significant association with demographic characteristics, the referenced studies found socio-economic status, and level of visual impairment,[9] as well as, age, to be significantly associated with their results. Similar to our study, both studies had high proportions of illiterates, who have been shown to have a lower odds-ratio of accessing eyecare services.[9,11]

Low awareness about eyecare was one of the key findings of this study; a figure much less than those in studies of the general population emanating from both the north,[21] and the south,[9,12,22] of the country. This is further corroborated through later studies of the general population published across the world.[23-25] A main reason for this finding would be the nomadic lifestyle of truckers, rendering effective dissemination of information regarding eyecare problems difficult. Travel at odd hours, in the country's interiors, may also restrict availability of media through which information is transmitted, such as phone and data connectivity. Moreover, the sample participants surveyed by us had a high proportion of illiterate (18.4%) and semi-educated (47.1%) truckers, who have been shown to have less awareness of services, (56.25% and 56.1%, respectively). This could be a key determinant affecting their understanding and absorption of health-related information provided to them, thus decreasing uptake. Further, access to healthcare facilities where they could not only access eyecare, but are made aware of it's need, might be limited.[26] In our study, of the drivers aware about need for regular eye examinations, 60% mentioned eye camps as their primary source of information. Increasing access to sources of health and eyecare information may increase awareness amongst this mobile population. Lastly, 63.6% of drivers above the age of 35-years were less aware as compared to the younger drivers, a demographic characteristic found to be significant in explaining person-related barriers such as unawareness, in an earlier general population study.[12]

Unfelt need was the second most reported barrier to uptake of eyecare services (33.3%). It is part of person-related barriers, found to be significantly explained by age, in a general south Indian population.[12] 68.9% of these drivers, were either illiterate or semi-educated, possibly affecting their understanding and interpretation of signs and symptoms potentially manifesting and throwing light on their deteriorating visual function. Moreover, 60% of our study's truckers, below 35-years did not feel the need to undergo eye examinations. A possible explanation for this would be that functional vision in these young truckers may be good, regardless of the overall visual function. In a US study of long-haul truckers, 75% reported good health, but were later diagnosed with a range of lifestyle diseases.[27] Studies from north and south India, report prevalence of refractive error in truck-drivers to be 17.14% and 28.57%, respectively,[18-19] depicting the persistence of the problem, despite low felt need and awareness. Another explanation for this could be drivers' remuneration, which they may perceive as being adversely affected by sick days, thus, building pressure for non-top work to maximize earnings.[28]

Eye health promotion in developing countries has three components: education to increase service uptake; service improvements to increase accessibility and acceptability; and partnerships with the government

for prevention policies.[29] A 2003 sexually transmitted disease reduction program established clinics on specified corridors frequented by truckers,[30] introducing awareness activities like street plays, truckers' festivals, free consultation, etcetera. These clinics can be partnered with and eyecare programs included. Further, pictorial hoardings and billboards on national highways and roadside restaurants frequented by these truckers, would also help increase awareness regarding the need for routine eye examinations. Lastly, partnership with the government to run awareness campaigns via the radio, such as that for the Swachh Bharat Abhiyan, would help disseminate information via a medium truck-drivers are familiar and comfortable with.

This study had a few limitations, especially the low number of drivers surveyed, and the sample being restricted to north India. Bias may also have been caused due to the high level of illiteracy in the sample. However, a seminal strength of this study would be that it is the first of it's kind to report on barriers faced by truck-drivers in India.

Visual function is important to ensure safety while driving, as it affects drivers' reflexes on the road. This study found that very few truckers had ever undergone eye examinations, citing lack of awareness and unfelt need as the main barriers. Thus, interventions targeted at generating awareness and education in these truckers as to the need for regular eye examinations need to be brought under the umbrella of existing healthcare and road safety programs to overcome their unique occupational limitations.

Ethical Clearance: Taken from Institutional Review Board of Dr Shroff's Charity Eye Hospital (IRB/2019/OCT/08).

Reference

1. National AIDS Control Organization- Ministry of Health & Family Welfare. Targeted Intervention for Truckers: Operational Guidelines, NACP III. New Delhi; 2007.
2. Udayar SE, Rajesh KK, Praveen BAK, Vairamuthu S, Thatuku S. Study of Cardiovascular Risk Factors Among Transport Drivers In Rural Area Of Andhra Pradesh. Ntl J of Community Med. 2015;6:566-570.
3. Kartikeyan S, Gurav RB, Joshi SD, Wayal R. Health and socio-demographic profile of transport workers. Indian J Occup Environ Med 2004;8:8-10.
4. Castrol. Driving the economy: health & well-being of truck-drivers; 2018.
5. Owsley C, McGwin G. Vision and driving. Vis Res 2010;50:2348-61.
6. Mäntyjärvi M, Tuppurainen K, Rouhiainen H. Visual function in professional truck-drivers. Int Arch Occup Environ Health. 1998;71:357-62.
7. Chou CF, Sherrod CE, Zhang X, Barker LE, Bullard KM, Crews JE, et al. Barriers to eyecare among people aged 40 years and older with diagnosed diabetes, 2006-2010. Diabetes Care. 2014;37(1):180–188.
8. Gower EW, Silverman E, Cassard SD, Williams SK, Baldonado K, Friedman DS. Barriers to attending an eye examination after vision screening referral within a vulnerable population. J Health Care Poor Underserved. 2013;24(3):1042–1052.
9. Kovai V, Krishnaiah S, Shamanna BR, Thomas R, Rao GN. Barriers to accessing eyecare services among visually impaired populations in rural Andhra Pradesh, South India. Indian J Ophthalmol. 2007;55(5):365-371.
10. Venkataswamy G, Brilliant G. Social and economic barriers to cataract surgery in rural south India. Visual Impairment Blindness. 1981;405-68.
11. Dandona R, Dandona L, Naduvilath TJ, McCarty C, Rao GN. Utilization of eyecare services in an urban population in southern India. Br J Ophthalmol. 2000;84:22-7.
12. Marmamula S, Khanna RC, Shekhar K, Rao GN. A population-based cross-sectional study of barriers to uptake of eyecare services in South India:the Rapid Assessment of Visual Impairment (RAVI) project. BMJ Open. 2014;4(6):e005125.
13. Apostolopoulos Y, Peachey AA, Sönmez S. The psychosocial environment of commercial driving: Morbidities, hazards, and productivity of truck and bus drivers. Handbook of Stress in the Occupations. 2011;431.
14. Sharma PK, Ganguly E. Morbidity profile of long-haul truck-drivers in Hyderabad city, India. J Dr NTR Univ Health Sci. 2014;3(4):234–237.
15. Cavagioni LC, Pierin AMG, Batista KM, Bianchi ERF, Costa ALS. Health problems, hypertension and predisposition to stress in truck-drivers. Revista da Escola de Enfermagem da USP. 2009;43(s2):1267-

1271.

16. Hege A, Lemke MK, Apostolopoulos Y, Sönmez S. Occupational health disparities among U.S. long-haul truck-drivers: the influence of work organization and sleep on cardiovascular and metabolic disease risk. PLoS One. 2018;13(11):e0207322.
17. Apostolopoulos Y, Sonmez S, Shattell M M, Belzer M. Worksite induced morbidities among truck-drivers in the United States, AAOHNJ. 2010;58:285–96.
18. Prasad RJ, Krishna MB, Satyanarayana U. Refractive errors and color blindness among truck-drivers: A pilot study. J NTR Univ Health Sci. 2013;2:89-91.
19. Slathia A, Dhar RH, Mahajan P. The Prevalence of Refractive Error and Color Blindness in Truck-drivers. Journal of Medical Science and Clinical Research. 2017;5:28703-28707.
20. Sightsavers. EYES OK PLEASE: A report on the access to eye health services among truck-drivers in India. New Delhi;2017.
21. Misra V, Vashist P, Singh SS, Malhotra S, Gupta V, Dwivedi S N, et al. Awareness and eye health-seeking practices for cataract among urban slum population of Delhi: The North India eye disease awareness study. Indian J Ophthalmol. 2017;65:1483-8
22. Marmamula S, Keeffe JE, Raman U, Rao GN. Population-based cross-sectional study of barriers to utilisation of refraction services in South India: Rapid Assessment of Refractive Errors (RARE) Study. BMJ Open. 2011;**1:**e000172.
23. De-Gaulle VF, Dako-Gyeke P. Glaucoma awareness, knowledge, perception of risk and eye screening behaviour among residents of Abokobi, Ghana. BMC Ophthalmol. 2016;16(204).
24. Al Rashed WA, Bin Abdulrahman AK, Zarban AA, Almasri MS, Mirza AS, Khandekar R. Public Awareness regarding Common Eye Diseases among Saudi Adults in Riyadh City: A Quantitative Study. J Ophthalmol. 2017;2017:9080791.
25. Shrestha GS, Sigdel R, Shrestha JB, Sharma AK, Shrestha R, Mishra SK, et al. Awareness of Eye Health and Diseases among the Population of the Hilly Region of Nepal. J Ophthalmic Vis Res. 2018;13(4):461–469.
26. Gupta SK, Murthy GV. Where do persons with blindness caused by cataracts in rural areas of India seek treatment and why? Arch Ophthalmol. 1995;113:1337–40.
27. Apostolopoulos Y, Sönmez S, Shattell MM, Gonzales C, Fehrenbacher C. Health survey of U.S. long-haul truck-drivers: work environment, physical health, and healthcare access. Work Read Mass. 2013;46:113–23.
28. Belzer MH, Sedo SA. Why do long distance truck-drivers work extremely long hours?. ELRR. 2018;29(1):59–79.
29. Hubley J, Gilbert C. Eye health promotion and the prevention of blindness in developing countries: critical issues. Br J Ophthalmol. 2006;90:279-284.
30. World Bank. Corporate Responses to HIV/AIDS: Case Studies from India. Washington, DC: The World Bank; 2007.