

Socio-Economic Status and Health Condition among the E-Rickshaw Puller Drivers: A Case Study

Dr. Raisul Bari¹, Md Areful Hoque², Naved Ansari³

¹Assistant Professor, ²Senior Research Fellow, ³Junior Research Fellow,

¹Department of West Asian and North African Studies, A.M.U., Aligarh, Uttar Pradesh, India

^{2,3}Department of Geography, Aligarh Muslim University, Aligarh, Uttar Pradesh, India

ABSTRACT

An E-Rickshaw vehicle is the boon to the common man. Overall, India is the home of 1.5 million battery operated electric rickshaw, catering to over 60 million commuters users every day especially in and around metro routes and highly populated pockets. The Electric Rickshaw is also known as '**Tuuk-Tuuki**' or '**Toto**' or Battery Rickshaw at different name in different places. The three wheeled battery operated Electric Rickshaw or E-Rickshaw has emerged in public road transport in Malda district of West Bengal like many parts of the country recently 4-5 years ago. The E-Rickshaw is environment friendly and has the potential to reduce the carbon foot-print due to passenger transport system. This paper is an attempt to assessment the socio-economic strength of the E-Rickshaw drivers, to know the health status of the E-Rickshaw drivers and to know the problems faced by the E-Rickshaw drivers in the study area. The Malda district of West Bengal has been selected as the study area, known as Gateway of North Bengal, famous for mango and raw silk production. The entire research work is based on both primary and secondary sources of data. The results of the study shows that 51.23 per cent of the respondents are income daily INR 501-1000 from E-Rickshaw services, 23.45 per cent of the E-Rickshaw drivers are facing the debt problems to recovery the financial loan. The researchers suggested that Central as well as State Government should given the subsidized loan from public and private sector banks and other financial institution for buying the new E-Rickshaw the study area. The E-Rickshaw has the potential to reduce the fuel oil consumption for passenger transportation which may lead to both economic and environmental benefit.

KEYWORDS: E-Rickshaw, Income, Eco-friendly, Debt, Health, Socio-economic

INTRODUCTION

E-Rickshaw is the unprecedented electric vehicle revolution in transport sector of India in the modern age. Overall, India is the home of 1.5 million battery operated electric rickshaw, catering to over 60 million users every day especially in and around metro routes and highly populated pockets. E-Rickshaw also provides ample livelihood to the millions of peoples in urban and rural area. The Electric Rickshaw is also known as '**Tuuk-Tuuki**' or '**Toto**' or Battery Rickshaw at different name in different places. E-Rickshaw can provide a safe, environmentally eco friendly, energy efficient and very cost effective transport system in cities and towns and rural India. This battery operated E-Rickshaw vehicles have gained much popularity owing to popularity and economic mode of transport for the daily commuters. Near about 60 million of Indians used E-Rickshaw everyday for the daily survivability, pay only INR 10 / INR 20 for a ride. Road transport is an important part of infrastructure development in any region. The reduction of air pollution and green house gases are the main causes of running the E-Rickshaw in transport sector. Moreover, E-Rickshaw reduces the manual labour involved in driving a cycle- rickshaw. The three wheeled battery operated Electric Rickshaw or E-Rickshaw has emerged in public road transport in Malda district of West Bengal like many parts of the country recently 4-5

years ago. These vehicles inbuilt with brushless DC motors for vehicle propulsion, powered by conventional lead acid batteries. The E-Rickshaw is environment friendly and has the potential to reduce the carbon foot-print due to passenger transport system. E-Rickshaw has become one of preferred modes of transport between short distance and mostly operating in major urban, sub-urban township and rural areas. An E-Rickshaw can travel maximum 65 Km. in a single charge after which it needed to be recharged. Most of the Indian metro cities are faces very high air and noise pollution caused by transport sector vehicles especially diesel operated vehicles. An improved and electric Rickshaw can provide a non-polluting and very silent transport system for urban and rural areas of India. The country India is the second largest collection of Electric vehicles in the world after China. One of the first attempt to invention and designed made of electric rickshaw was done by Nimbkar Agricultural Research Institutes in late 1990. In India, these so called e-Rickshaw are widely spread all over the country, starting to gain popularity around 2011. It has becoming more popular in some metro cities since 2008 as an alternative to auto rickshaw and pulled rickshaw because of their low fuel cost and less human effort compared to pulled rickshaw. They are mostly manufactured in China and India,

How to cite this paper: Dr. Raisul Bari | Md Areful Hoque | Naved Ansari "Socio-Economic Status and Health Condition among the E-Rickshaw Puller Drivers: A Case Study"

Published in International Journal of Trend in Scientific Research and Development (ijtsrd), ISSN: 2456-6470, Volume-5 | Issue-2, February 2021, pp.174-179, URL: www.ijtsrd.com/papers/ijtsrd38355.pdf



IJTSRD38355

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only a few other countries manufacture these vehicles. The major E-Rickshaw manufacture company in India are Kinetic Green, Hero Electric, Mahindra and Mahindra, Bajaj, Piaggio, Lohia, Gayam Motors Works etc. **An E-Rickshaw vehicle is the boon to the common man.**

Health has been a matter of universal concern in all times of history and have attracted to the attention of the academicians, planners, policy makers and researchers. Health has been considered important and fundamentals aspects in every scattered geographical collection since inception of early times of human history and knowledge. Health is considered to be most significant component of well being and essential for balanced growth of a society. The future of the nation lies with its healthy population and the sick population is liability. Health is the utmost important and it becomes the top in priority that has given the full attention and focuses by every individual and society. The famous quote, Health is wealth stands with the fact that the level of development achieved by a society is often determined on the basis of the level of health and the system prevalent in the society. A healthy and nutritionally well fed population is indispensable for the economic growth and development of nation. On the other hand, malnutrition or food insecurity adversely affected the human health in terms of sickness and life expectancy. The life-style of an individual is of great importance for both his health status and quality of life. It is increasingly recognized that health is maintained and improved not only through the advancement and application of health science, but also through the efforts and intelligent lifestyle choices of the individual and society. According to the World Health Organization, the main determinants of health includes income and social status, social support networks, educational and literacy level, employment the social and economic environment, the physical environment and the person's individual characteristics and behaviors, personal health practices (*yoga*), health care services etc. The good health can be achieved by consumption of proper and nutrition diet timely, daily or routine exercises and well sleep.

Health is a state of physical, mental and social well-being in which disease and infirmity are absent. There is an important saying that '**health is wealth**' and food is considered one of the most significant pre-requisites for good health. Health is an important component for ensuring better quality of life. Our Father of Nation Mahatma Gandhi says "**It is Health that is real wealth and not pieces of gold and silver**". The large masses of the Indian poor still continue to fight and constantly losing the battle of survival and health. A person with poor health is often a liability to his family, society and a nation. In our country, the public health challenges are enormous, especially highest number of maternal and infant mortality rate that are very common in rural India. Access to clean and safe water, proper sanitation and hygiene (WaSH) are essential elements in achieving the better standard of health and healthy society. The countryside of Malda district of West Bengal there is average health condition among the persons and its infrastructure facilities is not satisfactory due to lack of proper treatment, lack of government hospital per lakh of

population, lack of doctor and nurses, high cost of treatment in private hospital etc.

A state of condition in which things were considered in qualitative measures with positive way is called development. When the development occurs in social and economic sectors is called socio-economic development. The socio-economic development is always influenced by the factors of environment and culture. Therefore, a systematic way of social and economic development in a society or region is called socio-economic development. The socio-economic development can be measured through the improvement in education sectors, per capita income, employment opportunity, gross domestic product share, literacy and levels of employment, levels of economic development and planning, levels of health care services, process of urbanization, quality of housing, improvement in transport and communication sectors etc. social development is defined as on-going refinement of existing behavioral patterns, feelings, attitude towards others and understanding of others. Socio-economic development incorporates public concern in developing social policy and economic initiatives. The ultimate objective of social development is to bring about sustained improvement in the well-being of the individuals, groups, family, community and society at large. The living standard of the people of any region can be improved through the socio-economic development. Socio-economic development is the well status in the sectors of social and economic sectors. The economic development is the process of raising the level of purchasing power parity, production, distribution and consumption of goods and services with a geographical unit.

Dutta, A. and Jash, T. (2013) pointed out that the continuous increase in population and industrial development in the country like India has lead to the increase in the demand for transport both in cities and rural areas. Their study reveals that the major problems associated with these vehicles is huge pollution due to using of kerosene mixed with petrol as their fuel. The researchers suggest that these vehicles are used in rural and remote area because only in these places will the benefits of these vehicles. **Chandran, N. and Brahmachari, S.K. (2015)** observed that electric rickshaw came from enhancing the design of already existing cycle to create battery rickshaw, reduce human drudgery and environment friendly, leaving a low carbon foot-print. The researcher suggests the solar electric rickshaw can be used to for utilize the non-conventional energy resource and saving the electric energy. **Rana, S., Hossian, F., Roy, S. S. et. al. (2018)** pointed out that battery operated E-Rickshaw is an important vehicles in urban transportation system in Bangladesh. This vehicle is also called as Easy Bike. Their study reveals that most of the peoples in urban and urban outskirts people are prefer battery operated E-rickshaw due to low fare rates and locally easily available. Moreover, battery operated E-Rickshaw is most prone to chances of fatal accident due to light weights. The researcher suggested that E-Rickshaw drivers should be trained in driving because most of them are not well trained in driving.

Table 1: Major Features of E-Rickshaw

Parameter	Specification
Motor Type	Brushless DC Motors
Power	850 Wt.
Charge Voltage	220 Voltage
Charging Time	6-10 Hours
Top Speed	25 Km / Hour
Brake Type	Double rear Drum Brake
Net Weight	190 Kg.
Seating Capacity	4+ 1 (50 Kg. Luggage)
Maximum Load Capacity	Up to 400 Kg.
Electricity Consumption / Charge	5-6 Units
Average Price (INR)	INR 90000 - 120000/-

Source:

https://en.wikipedia.org/wiki/Electric_rickshaw,2020

Statement of Problems

Today E-Rickshaw plays a vital role in providing livelihood to the peoples in Malda district of West Bengal. In Malda district as per government official RTO (Regional Transport Office, Collectorate Malda district) in April 2019, their number was crossed over 55000. E-Rickshaw have now transitioned from being a market entrant in the automobile segment of the country to evolves as larding short distance transport solution in the rural areas of Malda district of west Bengal. Majority of E-Rickshaw puller drivers are belongs to lower middle class family. The socio-economic status measures the economic and quality of standard of life. The average price of an e-rickshaw is also the out of budget to a middle class person. Men, women and children who are below 18 years are involved in E-Rickshaw drivers in Malda district of West Bengal. The socio-economic status such as income level, types of houses, poverty, health hazard, family problems, poor housing facilities, insufficient nutrias food, illiteracy, physical stress and debt etc. So, the researchers are much taken to consideration of this particular study. The findings of the study will be very much useful to Ministry of Labour and Employment, Government of India and NGO's working for the development of this unorganized sector.

Objectives of the study

The major objectives of the study are

1. To assess the socio-economic strength of the E-Rickshaw drivers in Malda district.
2. To know the health status of the E-Rickshaw drivers.
3. To know the problems faced by the E-Rickshaw drivers in the study area.

Database and Research Methodology

The present work is based on both **primary and secondary** sources of data. Primary data have been collected through intensive field survey in the district, based on well-structured questionnaire with regard to objective in mind. A total 324 respondent has been taken by simple random sampling at the Railway Station, Bus Stand, Central Business District (CBD) Point, Government Hospital, Cinema Hall where the large number of daily commutes maximum found. The filed survey has been conducted in the month of February and August, 2019.

The Secondary sources of data has been collected from District Statistical Handbook (2011), Census of India Report, 2011, Ministry of Labor and Employment, Government of West Bengal, Various Government Offices, Various Government Reports, Magazine, Journal, Articles, Research Papers, Newspaper etc.

After obtaining the data, simple percentage method has been used to show the different aspects of socio-economic status and health condition of E-Rickshaw drivers, so the study could vividly explain. The map of the study area has been prepared through Arc GIS 10.1 Software.

Geographical outline of the study area

Malda is one of the most important district in West Bengal. It lies in North Bengal on lower Indo-Gangetic plain. The latitudinal range of Malda lies between 24°40'20" North and 25°32'08" North, and the longitudinal range is 87°45'50" East and 88°28'10" East. The district covers an area of 3,733.66 square kilometers (1,441.6 sq. miles). To the north it is surrounded by Uttar Dinajpur district, to the south by Murshidabad district, to the east side it is an international border of Bangladesh and to the west side is the states of Bihar and Jharkhand. The total population of Malda is 3,997,970 (2011 census). The literacy rate is 61 per cent (66 per cent for males and 57 per cent for females). About 86.4 per cent peoples still live in rural area. For administrative purposes Malda district is divided into 15 development blocks. The district headquarter is English Bazar, also known as Malda, which was once the capital of Bengal. Gour, Pandua are most famous historical place in West Bengal. Rice, Mango, Jute, Oilseeds and silk are the most notable products of the district. The special variety of mango is produced in this region. The main rivers of the district are- the Ganga and the Mahananda.

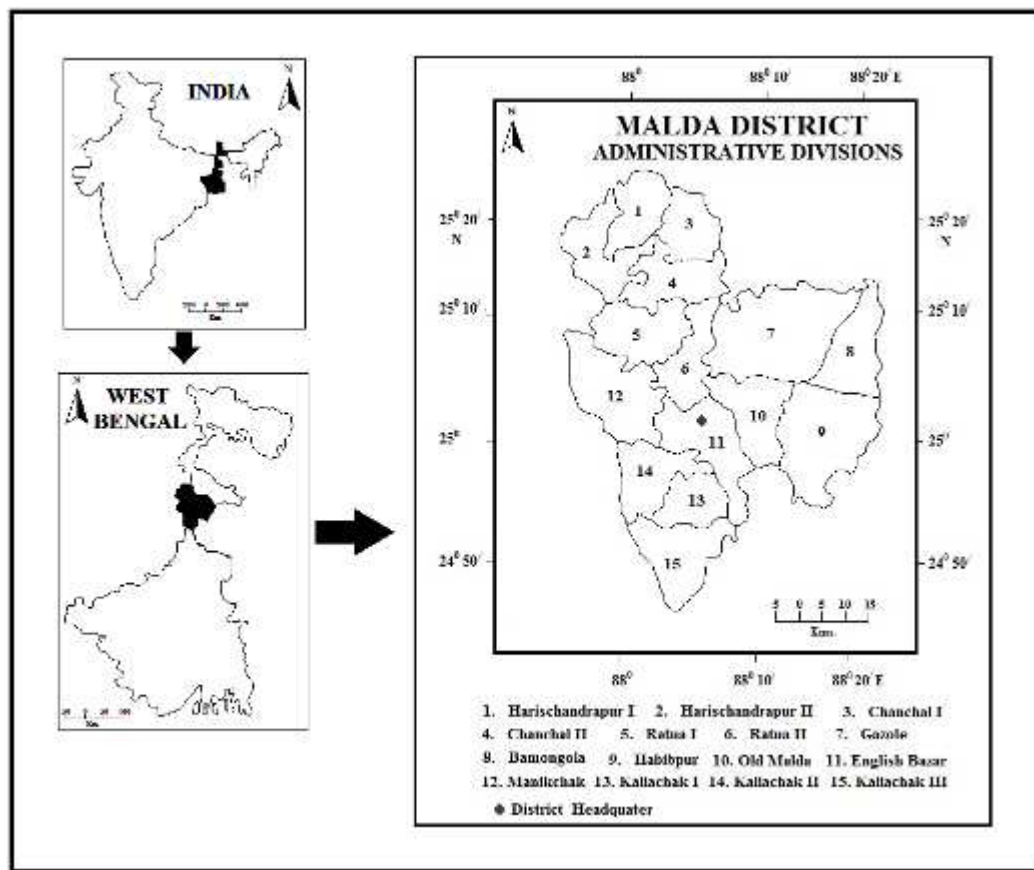


Figure 1: Location map of the Study Area

Result and discussion

Table 2: Age-Group of Respondents

Age Group	Number of Respondents	Percentage
15-25	138	42.60
25-35	119	36.73
35-50	43	13.27
Above 50	24	7.40
Total	324	100.00

Source: Based on Field Survey, February and August Month, 2019

Table 2 shows that 42.60 per cent of the total 324 respondents belong to age group 15-25 years while 36.73 falls within 25-35 years, 13.27 per cent of the respondent age group is 35-50 years and remaining 7.40 per cent of the age group is above 50 years.

Table 3: Educational background of the Respondents

Educational Qualification	Number of Respondents	Percentage
Illiterate	118	36.42
Secondary	137	42.28
Higher Secondary	53	16.36
Degree and above	16	4.94
Total	324	100.00

Source: Based on Field Survey, February and August Month, 2019

Table 3 shows that most of the E-Rickshaw drivers are illiterates with 36.42 per cent and 42.28 respondents are secondary level of qualification, 16.36 per cent of the respondents are Higher Secondary qualification. It shows that literates are also involved in this field, as only 4.94 per cent respondents are having their education at degree level.

Table 4: Types of Houses Living of Respondents

Types of Houses	Number of Respondents	Percentage
Taali House	127	39.19
Asbestos Roofed	106	32.72
Thatched House	55	16.98
RCC Roofed	24	7.40
Mud House	12	3.71
Total	324	100.00

Source: Based on Field Survey, February and August Month, 2019

Table 4 shows that 39.19 per cent of the respondent's houses have tile made house, 32.72 per cent of the respondents have Asbestos roofed, 16.98 per cent respondents have thatched house, 7.40 per cent have RCC (Reinforced Concrete Cement) roofed, and 3.71 per cent have mud houses.

Table 5: Daily Income level of the Respondents

Daily Income (INR)	Number of Respondents	Percentage
100-500	82	25.30
501-1000	166	51.23
1001-1500	44	13.59
Above 1500	32	9.88
Total	324	100.00

Source: Based on Field Survey, February and August Month, 2019

Table 5 shows that 25.30 per cent of the respondent are income INR 100-500 daily from E-Rickshaw driving, 51.23 per cent of the respondents are income INR 501-1000, 13.59 per cent respondents are income 1001-1500 and only 9.88 per cent are income above INR 1500 daily due to poses of double battery.

Table 6: Status of E-Rickshaw of the Respondents

Status of E-Rickshaw	Number of Respondents	Percentage
Owned	276	85.18
Rented	48	14.82
Total	324	100.00

Source: Based on Field Survey, February and August Month, 2019

Table 6 shows that 85.18 per cent respondents have owned E-Rickshaw and only 14.82 per cent of the respondents are taken E-Rickshaw from the Contractors or Agency in the study area.

Table 7: Availability of Toilet Facility

Toilet Facility	Number of Respondents	Percentage
Yes	287	88.58
No	37	11.41
Total	324	100.00

Source: Based on Field Survey, February and August Month, 2019

Table 7 depicts that 88.58 per cent of the respondents have toilet facility in their home and 11.41 per cent of the respondents does not have toilet facility in their home they are defecate outside.

Table 8: Major Problems of the Respondents

Major Problems	Number of Respondents	Percentage
High Maintenance cost	45	13.88
Debt in Loan	76	23.45
Extortion by local Scoundrels	43	13.27
Police harassment / torturing	38	11.72
High electricity bill of charging	17	5.24
Continuous battery exchange	28	8.64
Light weight chances to accident	43	13.27
Traffic Congestion	34	10.49
Total	324	100.00

Source: Based on Field Survey, February and August Month, 2019

Table 8 depict that 13.88 respondents faced that there is high Maintenance cost of E-Rickshaw in service mechanic shop regularly, 23.45 respondents are faced debt problems due to loan for buying the E-Rickshaw, 13.27 respondents are faced the forcefully extortion by local scoundrels, 11.72 per cent respondents are faced police harassment/torturing due traffic jam, 5.24 respondents faced the high electricity bill of charging of E-Rickshaw, 8.64 per cent respondents faced the continuous battery exchange problems, 13.27 per cent respondents faced the accidental case due to light weight of E-Rickshaw, 10.49 per cent of the respondents are faced the traffic congestion due to large number of gathering of E-Rickshaw.

Table 9: Health Status of the Respondents

Affected by Diseases	Number of Respondents	Percentage
Backache	55	16.97
Cough and Cold (Allergy)	117	36.11
Asthma	26	8.02
Rheumatic Problems	14	4.32
Eye irritation problems	44	13.58
Lungs Problems	37	11.41
Headache	31	9.56
Total	324	100.00

Source: Based on Field Survey, February and August Month, 2019

Table 9 shows that 16.97 per cent of the respondents are suffered from backache problems due long hours of continuous sitting at the driving seats, 36.11 per cent of the respondents are suffering from cough and cold (allergy) which is mostly found, 8.02 per cent of the respondents are faced Asthma problems due to smoke from vehicles, 4.32 per cent of the respondents are faced rheumatic problems, 13.58 per cent of the respondents are suffering form eye irritation problems due to smoke and dust particles, 11.41 per cent of the respondents are suffering from lungs problems and only 9.56 per cent of the respondents are suffering from headache problems.

Advantages of E-Rickshaw Facilities

- Source of livelihood to the peoples
- Affordable and very cheap services by the commuters
- Solving the short distance routes journey
- Eco-friendly and green mode of transport
- Easy and flexible services
- Best alternative vehicles as a substitute of fuels vehicles
- Energy efficient vehicles than other forms of motorized public vehicles
- Less noise pollution
- Low fare rates
- Reduction in local air pollution

Disadvantages of E-Rickshaw Facilities

- Unorganized sector as there is no institutional set up
- Consume huge amount of electricity at the time battery charging
- Light weight vehicles increase vulnerability to traffic accident
- More electricity consumption as it requires daily charge
- Maximum speed is less as compared to other vehicles
- Specific CO₂ emission is slightly more than mechanized vehicles
- Creates traffic congestion
- Lack of repair workshop
- Frequent stopping of the mode to load and unload the passengers
- Lack of skill and training to the drivers in riding the E-Rickshaw

Major Findings of the study

The researcher has pointed out the following points from the sharp observation in the entire work. These are-

1. It is observed from the field survey that 23.45 per cent of the E-Rickshaw drivers are facing the debt complications to recovery the financial loan in the study area.

2. It is evident from the field survey that 36.67 per cent of the respondents are suffered in cough and cold diseases (allergy) due smoke and dust particles in the road and 16.97 per cent of the respondents are suffered from backache problems due long hours of continuous sitting at the driving seats.
3. The results of the field survey shows that 51.23 per cent of the respondents are income daily INR 501-1000 from E-Rickshaw services in the study area.
4. The battery operated E-Rickshaw are eco-friendly, do not emit smoke, do not make noise pollution and excellent substitute to petrol / diesel vehicles in the study area.
5. Last but not the least E-Rickshaw vehicles are boon to the common man. These E-Rickshaw are easy to drive compared to the tedious task of traditional pulling rickshaw. Without putting much physical efforts and without much for investment money, the return earning is quite good for an E-Rickshaw driver and hence it is an important means of livelihood to the many people in the study area.

Suggestion and Policy Implication

- The Central as well as State Government should given the subsidized loan from public and private sector banks and other financial institution for buying new E-Rickshaw the drivers.
- The proper designation halt and departure point centre should be selected in the study area to prevent the traffic jam.
- Electric vehicle charging station should be installed in the urban as well as rural areas.
- The E-Rickshaw vehicles should be equipped with digital gadgets like GPS Tracking System, CCTV Cameras keeping safety in women and children.

Conclusion

The E-Rickshaw is energy efficient vehicles than other forms of motorized public road vehicles transport in Malda district of West Bengal. E-Rickshaw has the potential to reduce the fuel oil consumption for passenger transportation which may lead to both economic and environmental benefit. In a nutshell we can say that most of the E-Rickshaw puller drivers are belongs to lower middle class family and their socio-economic status is not satisfactory in the study area. Poverty is the main reason that induced the respondents to take up this occupation. The results of the study shows that 39.19 per cent of the respondents are living in *Taalimade* houses which shows that the poor standard of living. The proper implementation government guide line and regulation is very important for the smooth running of the E-Rickshaw. Truly speaking E-Rickshaw has the great potential to address the issues of environmental pollution due to poor transportation system. It emits lower level of pollutants than

the other vehicles. Let us accept it and prepares ourselves to meet the future challenges.

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