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Road safety - A Questionnaire Based Study

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ABSTRACT: *Road safety is a critical issue that affects not just road authority, but the entire country. Road accidents are growing fast in developing countries such as India. It is mostly owing to a larger number of car accidents on Indian roadways. A questionnaire-based survey is used in this study to assess the behaviour, attitude, mistakes, and other characteristics of drivers travelling in Gorakhpur district, U.P. (India). From July to September 2021, the Gorakhpur district will be the site of this study. This questionnaire survey covers a wide range of issues, including driver age, vehicle type, traffic rule awareness, driving experience, accident reasons, and many more. The findings of this study suggest that automobile drivers are heavily implicated in the survey, with the majority of accidents occurring as a result of overseeding. Based on these findings, the study suggests that there is a need for traffic rule awareness programmes as well as training programmes for new drivers with less than two years of experience, which will lead to a reduction in the number of road accidents in the Gorakhpur District.*

KEYWORDS: *Road traffic accidents, Driver's behavior, DBQ, Accidents causes*

I. INTRODUCTION

Methods and tactics for lowering the danger of a person using the road network being killed or badly wounded are referred to as road traffic safety. Road users include automobiles, bikers, and pedestrians. There are several difficulties associated with traffic law infractions, such as reckless driving, overspeeding, intoxicated driving, and so on. In this context, it is critical to develop road safety awareness initiatives aimed at both road users and drivers. Since road safety is a multifaceted strategy that encompasses better road design, safer vehicle provision, and road supervision. It also depends on traffic management and efficient rule and regulation enforcement. Road traffic accidents are on the rise in India as a result of the country's increasingly dangerous road conditions. According to the Ministry of Road Transport and Highways (Govt. of India), in the year 2017, 1,47,913 persons were killed and 4,70,975 were wounded in 4,64,910 road accidents in India.

II. LITERATURE REVIEW

Reason et al. (1990), the first to analyse driving behaviour, contend that driver mistakes and infractions are the primary factors of road accidents. Following that, many Drivers behaviour questionnaires (DBQ) models were built with certain adjustments such as lapses, aggressive infractions committed by drivers, and so on. Previous DBQ investigations were primarily focused on driver mistakes, lapses, and other factors that contributed to road accidents. In contrast to earlier research, this article seeks to cluster the driver's perspective rather than the factors (errors, lapses, violations). Previous research is given below.

TABLE 1. LIST OF PREVIOUS STUDIES

S.N.	Researchers	Work
1	Rumar (1985)	It has been stated that over 95 percent of road accidents are caused by human conduct, however the question remains as to which human behaviour elements regulate this.
2	McLellan et al. (1996)	It was discovered that wearing a seat belt can minimise the severity of injuries in car accidents.
3	Waller F et al. (1996)	Another dangerous activity found to be responsible for road traffic accidents is drinking and driving.
4	West & Hall (1997)	Overspeeding is a particularly risky driving practise that should be viewed as one of the most major causes of certain types of collisions.
5	Petridou & Moustaki (2000)	Some behavioural characteristics that promote risk taking and have a long-term influence have been identified; these factors include capacity overestimation, machism, persistent speeding and contempt for traffic restrictions, non-use of a seat belt and helmet, and collision proneness.
6	Cramer (2003)	It is stated that DBQ cluster analysis may cluster individuals rather than variables.
7	Irershen (2004)	It was discovered that seat belt use is severely regulated in many wealthy nations, with usage ranging from 53% to 92%.
8	Mshana & Miettola (2006)	Poor vehicle condition as a result of irregular or insufficient maintenance can also lead to road accidents.
9	Deusk (2006)	It was discovered that knowledge, belief, attitude, and driving experience are unsafe driving behaviours recognised with evidence.

10	Langford et al. (2006)	It was discovered that drivers who travelled more kilometres had lower collision rates per kilometre than those who drove less kilometres.

III. METHOD OF STUDY

B. Naga Kiran and Dr. N. Kumara Swamy provided the Questionnaire for Drivers for this study (2018). A total of 165 questionnaires were distributed at random among Gorakhpur district drivers for this study. A total of 128 drivers took part in the investigation. Drivers from all income levels, experienced and newcomers, men and women, and from varied work profiles were involved in this study. The key problem for this study was the accuracy of respondents in recalling accidents and bias in their behaviours.

IV. RESULTS

TABLE2. AGE OF PERSON

Age	No. of Person
Less than 20	10
20-29	50
30-39	37
40-49	18
>50 years	13

When questioned about their age, 39.06 percent of drivers said they were between the ages of 20 and 29, while 7.81 percent said they were under the age of 20, as indicated in table 4.1.

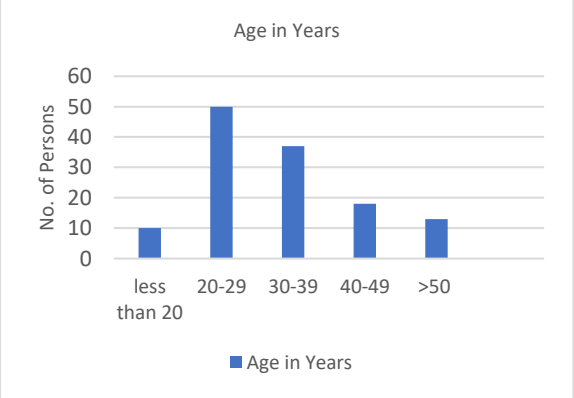

Figure 1. Age of Person

TABLE 3. GENDER OF PERSON

Gender	No. of Person
Male	97
Female	31

Table 2 clearly shows that 75.78 percent of drivers were male and 24.21 percent were female.

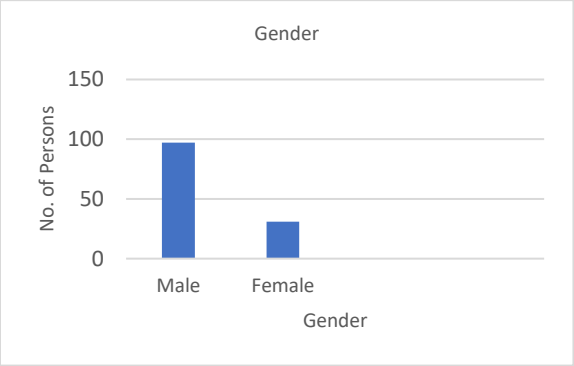

Figure 2. Gender of Person

TABLE 4. MARITAL STATUS

Status	No. of Persons
Married	79
Unmarried	49

When asked about their marital status, drivers reported that 61.71 percent married and 38.28 percent are not married, as shown in table 3.

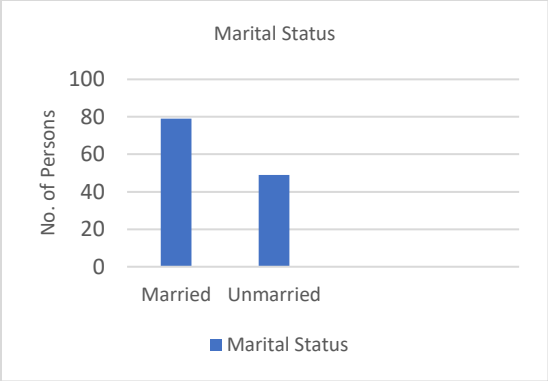

Figure 3. Marital Status of Person

TABLE 5. OCCUPATION OF DRIVERS

Occupation	No. of Persons
Private Job	106
Govt. Job	22

When questioned about their occupation, drivers responded that around 82.81 percent are involved in private jobs and the remaining 17.18 percent are involved in government jobs, as shown in table 4.

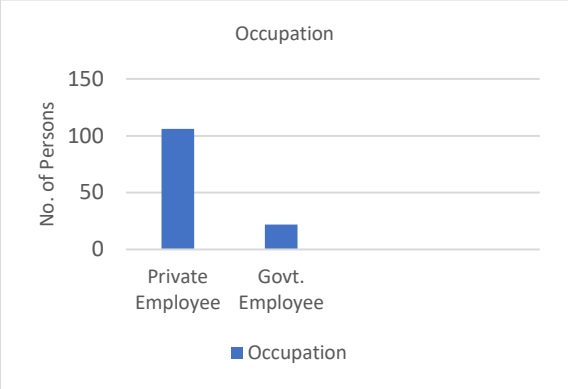

Figure 4. Occupation of Drivers

TABLE 6. NO. OF CHILDREN

Children	No. of Persons
No	53
1 to 2	32
3 to 4	38
>=4	5

When queried about their children, drivers stated that 25% had one to two children, while 41.40 percent have none, as shown in table 5.

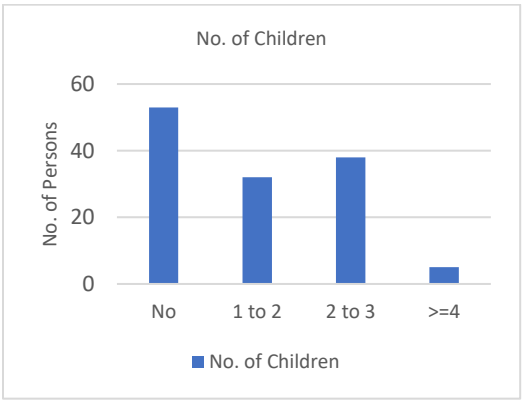

Figure 5. No. of Children

TABLE 7. DRIVING EXPERIENCE

No. of Years	No. of Persons
Less than 2 years	58
2 to 5	38
5 to 10	19
More than 10 years	13

When questioned about their driving experience, 45.31 percent of drivers answered that it was less than two years, while 10.15 percent stated that it was more than ten years, and they were largely bus drivers, as shown in table 6.

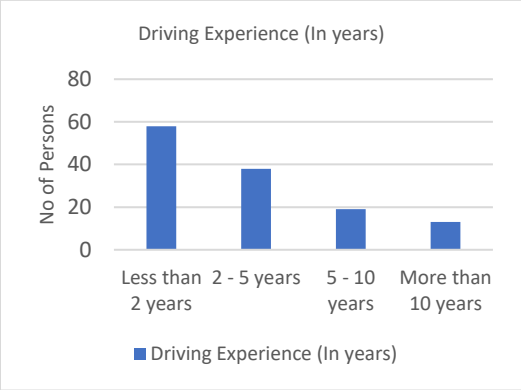

Figure 6. Driving Experience (In years)

TABLE 8. VEHICLE TYPE

Type of Vehicle	No. of Persons
Car	58
Bus	30
Mini Bus	15
Truck	16
Auto	9

As indicated in table 7, 45.31 percent of drivers said they drive a car, while others said they drive a bus (23.43 percent), a minibus (11.71 percent), a truck (12.50 percent), or an auto (7.03 percent).

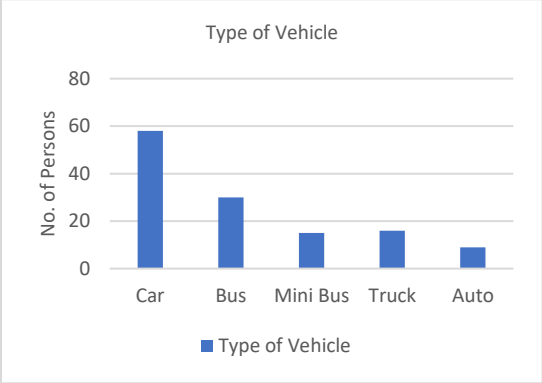

Figure 7. Type of Vehicle

Table 9. Frequency of Travelling

Frequency	No. of Persons
Rarely	6
Regularly	94
Depends on Situation	28

When asked how frequently they drove, 73.43 percent of professional drivers answered that they drove on a regular basis. 4.68 percent of drivers said they drove little because they were largely college students. While 21.87 percent of drivers stated that they only drive when necessary, as seen in table 8,

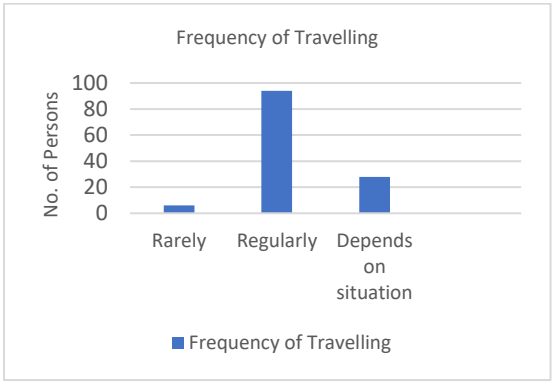

Figure 8. Frequency of Driving

TABLE 10. PURPOSE OF TRAVELLING

Purpose	No. of Persons
Commercial	87
Personal	41

When asked about the purpose of their journey, the majority of drivers, around 67.96 percent, answered that driving is their vocation and that they drive for a living. As seen in table 9, 32.03 percent of drivers answered that they drive for personal reasons.

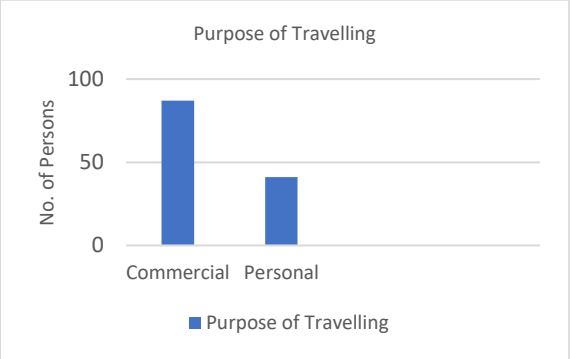

Figure 9. Purpose of Travelling

TABLE 11. AWARENESS FOR TRAFFIC RULES

Awareness for Traffic Rules	No. of Persons
Aware & always follow	81
Aware & rarely follow	16
Not aware	31

As indicated in table 10, when questioned about their awareness of traffic regulations and whether they obey them, 63.28 percent of drivers said they are aware of traffic rules, while 24.21 percent said they are not aware of traffic rules.

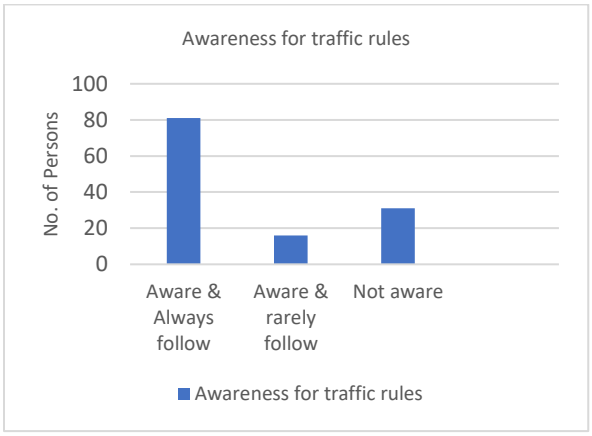

Figure 10. Awareness for traffic rules

TABLE 12. DRINKING HABITS

Habit	No. of Persons
Occasional	67
Regular	29

Never	32

When asked about their drinking habits, 52.34 percent of drivers admitted to drinking on occasion while driving. Table 11 shows that 22.65 percent of drivers admit to drinking frequently while driving and 25 percent admit to never drinking while driving.

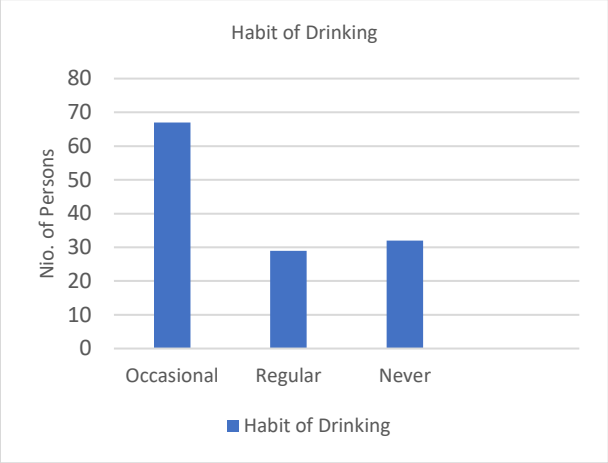

Figure 11. Drinking Habits

TABLE 13. FREQUENCY OF WITNESSING ACCIDENT

Frequency	**No. of Persons**
Never	72
1 to 2	31
3 to 4	17
>4	8

When asked how frequently they had witnessed accidents, 56.25 percent of drivers said they had never seen one, 24.21 percent had seen one to two accidents, 13.28 percent had seen three to four accidents, and 6.25 percent had seen more than four accidents, as indicated in table 12.

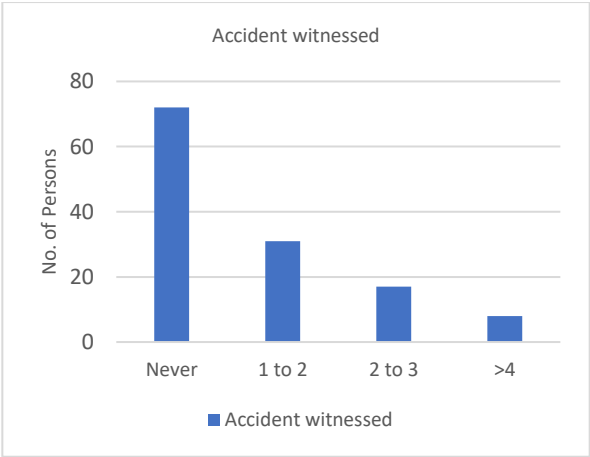

Figure 12. Frequency of witnessing accident

TABLE 14. TYPE OF INJURIES HAPPENED WHILE DRIVING

Injury	No. of Persons
Major	7
Minor	29
No	92

When asked if they had had any road accident injuries while driving, 71.87 percent said they had not. Table 13 shows that 22.65 percent of respondents reported mild injuries and 5.46 percent reported significant injuries while driving.

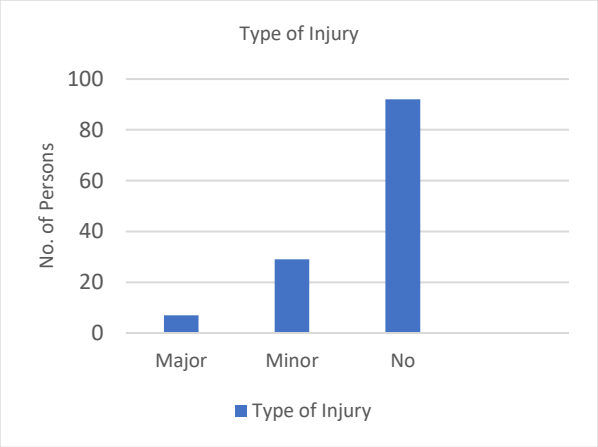

Figure 13. Type of injuries happened while Driving

V. DISCUSSIONS

The findings of this survey reveal the socio-demographic profile of drivers, revealing that the majority of drivers were male, aged 20 to 29, married, and employed as private employees. Poo and Ledesma (2013) and Bosak et al. (2013) similarly treated socio-demographic profile as significant aim in their research effort, and the outcomes of both studies are comparable.

Driving experience is determined by how much time a driver spends driving. Following that, knowledge and abilities have an impact on driving experience. According to the survey findings, 58 drivers have less than two years of experience. 13 drivers have more than ten years of driving experience, with the majority of them being bus drivers. Peer (2011) mentions this in their study work as well.

Accidents on city roads and highways are frequently caused by the frequency and purpose of mobility. According to the survey findings, 73.43 percent of drivers travel in the area on a regular basis, and 67.96 percent of drivers travel in the district on a business basis.

Vehicle maintenance is extremely vital in road traffic. According to Mshana and Miettola (2006), poor vehicle condition owing to insufficient maintenance might contribute to road traffic accidents.

In this survey, 32.03 percent of drivers examine their vehicles extremely regularly, while 47.65 percent inspect their vehicles on a regular basis.

When asked if they had witnessed any accidents or had any injuries while driving, 56.25 percent of the drivers said they had never witnessed any accidents, and 71.87 percent said they had suffered no injuries in accidents.

Avoiding traffic regulations, drinking habits, and the use of seat belts all have a significant part in the occurrence of accidents on city streets and highways. According to the findings, 63.28 percent of drivers said they are aware of traffic regulations and always observe them, but 22.65 percent said they drink on a regular basis, which is a bad indicator for road safety. In his research, MC Lellan et al.(1996) stated that seat belt use can lower the severity of traffic accidents, while Steptoe et al.(2002) stated that seat belt use is tightly enforced in many industrialised nations.

VI. CONCLUSIONS AND RECOMMENDATIONS

According to the current survey, the majority of drivers in the Gorakhpur area believe that speeding is a major cause of road traffic accidents. Based on the findings of this study, the following conclusions and recommendations are made to aid in the decrease of road traffic accidents.

1. Drivers must pay attention to traffic signals and properly adhere to traffic laws. At the same time, drivers must follow traffic laws and drive safely.
2. To avoid accidents, drivers should be mindful of traffic signs, speed restrictions, and safety measures, and they should not use mobile phones while driving.
3. Drivers should not be aggressive when driving, and they should not drive after drinking or consuming alcohol.
4. The government should get involved in promoting driver awareness programmes regarding traffic rules, road safety, and other driver safety programmes.
5. To avert accidents, traffic police and health personnel should work together to coordinate and implement comprehensive road safety measures.
6. Drivers should get skill-related driving training programmes on a regular basis in order to develop their abilities and knowledge.
7. The studies also advise that road conditions be checked on a regular basis for repair.

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