Article

An Analysis of Driving Behavior of Educated Youth in Bangladesh Considering Physiological, Cultural and Socioeconomic Variables

Ashraf Mahmud Rayed [1] , Muhammad Atiq Ur Rehman Tariq [2,3] , Mizanur Rahman [1], A. W. M. Ng [4,*] ,
Md. Khairul Alam Nahid [1] , Mahibuzzaman Mridul [1] , Wazed Al Islam [1] and Muhammad Mohiuddin [5]

[1] Department of Mechanical Engineering, Chittagong University of Engineering and Technology, Raozan, Chittagong 4349, Bangladesh; rayed.ugresearch@gmail.com or u1803139@student.cuet.ac.bd (A.M.R.); mmrahman_me@cuet.ac.bd (M.R.); u1803069@student.cuet.ac.bd (M.K.A.N.); u1803082@student.cuet.ac.bd (M.M.); u1803170@student.cuet.ac.bd (W.A.I.)

[2] College of Engineering and Science, Victoria University, Melbourne, VIC 8001, Australia; atiq.tariq@yahoo.com

[3] Institute for Sustainable Industries & Livable Cities, Victoria University, Melbourne, VIC 8001, Australia

[4] College of Engineering, IT & Environment, Charles Darwin University, Darwin, NT 0810, Australia

[5] Department of Environmental Sciences, Kohsar University Murree, Punjab 47150, Pakistan; mmmohiuddin@kum.edu.pk

* Correspondence: anne.ng@cdu.edu.au

Abstract: One of the alarming aspects of Bangladesh's traffic safety is the massive growth in the number of drivers without previous driving instruction or licenses. Proper traffic safety is defined as systems and techniques used to safeguard road users against dying or being severely injured. A driving simulator policy and an environmental model are validated in this research. It aims to create a safe mass transit system with a minimal number of fatalities and injuries. The study focuses on current road and transportation strategies. Educated and internet-using Bangladeshi drivers took part in a questionnaire about their emotional stability on an online platform with more than 100 questions comprising two parts. While one of the part outlines the physiological, cultural, and socioeconomic factors and driver education, in another part, an 18-point Driver's Behavior Questionnaire was introduced to the responders. About 40% of the surveyed drivers in the poll were inexperienced. However, 49% of people prefer to ride two-wheelers. Moreover, 70% of surveyed drivers hold valid driver's licenses. At the same time, 35.2% of those were college graduates. Even 34.8% of accidents were caused by excessive speed and non-aggressive driving. In addition, age and degree of education were significant indicators of distracted driving violations. The study's findings will raise awareness about the country's undesirable driving patterns, resulting in a safer transit system with fewer accidents and deaths. In addition, the findings may be utilized to improve present road and transit policies and lead to the development of a driving simulator program for Bangladeshis.

Keywords: driving simulator; unusual driving behaviors; drivers' behavior questionnaire; road safety

1. Introduction

In recent years, the number of individuals killed or wounded in automobile accidents has risen considerably. The threat they represent to humanity is one of the most critical concerns the world has ever faced. They may cause bodily and psychological suffering as well as financial turmoil. By 2030, it is predicted that road traffic accidents will be the fifth most prominent cause of mortality globally, ranking fifth overall [1]. The strategies and procedures implemented to protect road users from dying or being badly wounded are road traffic safety [2]. According to the Accident Research Institute (ARI) of Bangladesh University of Engineering and Technology (BUET), 56,987 persons have died in 58,208 vehicle accidents in Bangladesh during the previous two decades. In addition, 6686 people were

killed, and 8600 were wounded in 4891 traffic accidents in Bangladesh in 2020, according to Bangladesh Passengers Welfare Association's (BPWA) annual road accident monitoring report. A recent report estimated that approximately 1.35 million people die in road accidents every year. Despite accounting for only 60% of all vehicles on the road, low and middle-income countries account for 93% of all fatalities. Road, vehicle, and human factors are essential in a car accident (drivers). Human factors are to blame for nearly 70% of all traffic accidents [3].

A driving simulator is a research tool, as it is used for various purposes in the industry sector and university research labs. The world's top automobile manufacturers, like BMW, Renault, and Ford, maintain their development for humanity with these types of tools. In the university or any institute of the vehicle having a lab, the researchers study drivers' behavioral changes and reactions and check out the training sections under various conditions. Driving simulators are used in educational institutions and private companies to teach amusement and driver's education courses. They are also used to monitor driver behavior, performance, and attention in human factors and medical research. They can create and assess new cars or sophisticated driver assistance systems in the automobile industry [4]. Many driving assistance technologies are being developed in Europe to help minimize traffic accidents. The threshold in such a system is frequently established depending on the average driver's performance. However, this option will likely not provide adequate driving assistance to the driver when doing various activities [5].

A concept of the environment is included in Figures 1 and 2. For all drivers, we need to preserve some preloaded algorithm data, which should be preserved for executing the simulator. Users can practice driving on this simulator using real-world equipment after incorporating data.
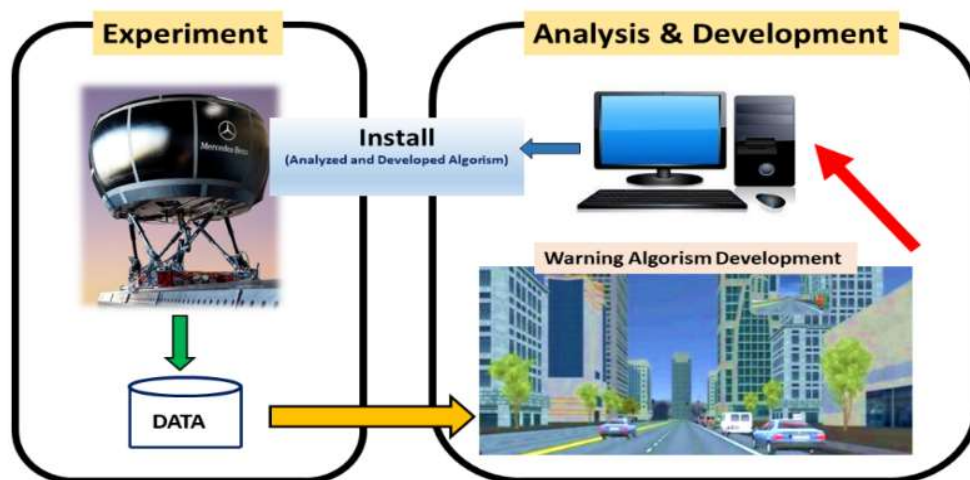

Figure 1. Constructed system for experiment data analysis and warning algorithm development.

In the case of Bangladesh, there is substantially less information available concerning unusual driving behaviors. This problem has not been thoroughly investigated in Bangladesh, where acquiring a driver's license is not the most challenging undertaking. There were no studies or data identified in this area for Bangladesh until 2021. Research has utilized the DBQ to measure deviant driving behaviors in other nations, but no study has been undertaken in Bangladesh.

The current study is based on the preceding considerations and intends to examine the impact of driving instruction and license on aberrant driving behavior in Bangladeshi drivers. It is well acknowledged that sociodemographic factors significantly influence directing and creating unpredictable driving practices. Thus this article looks at sociodemographic factors such as gender, marital status, age, revenue, and education level in a sample of Bangladeshi drivers' aberrant driving behaviors. Furthermore, this article aims

to look at Bangladeshi drivers' strange driving habits and validate the need to develop and implement a driving simulator policy and environmental concept.

Figure 2. Proposed internal environment for driving simulator.

2. Literature Review

Evans (1996) showed that behavior kept a higher impact intensity than driving activities on highway security [6]. De Winter et al. (2010) demonstrated that the behavioral actions of drivers are a significant impact factor in accidents that happen on highways. The most effective tool for assessing driving habits in the transformational research section is the Driving Behavior Questionnaire [7]. Reason et al. (1990) surveyed 520 United Kingdom drivers to explore the defilements, harmful error, safe lapses, and unusual drivers' behavior, assisted by the DBQ [8]. Using the DBQ, G. Fancello et al. & F. Wang et al. (2020) experimented in Australia, Laujunen et al. (2004), and Sullman et al. (2002) trialed the DBQ in Sweden, Finland, and New Zealand, respectively, Mesken et al. (2002) investigated in the Netherlands, and Sümer et al. (2002) completed the task in Turkey and Spain. After a while, the research work was again done with the help of the DBQ, Nordfjærn et al. (2014), Mallia et al. (2015), Kaiser et al. (2016), Batool & Carsten (2017), and Muhammad & Jing (2020) inspected the drivers' unusual behavior [9–17].

Coeckelbergh et al. (2002) examined the influence on driving characteristics of occipital cortex deficits and predicted functional fitness [18]. Bella et al. (2005, 2007) revealed that calibrating and validating the driving simulator could be used to develop and test the effectiveness of temporary traffic signals on highways. The driving simulator has the potential to be used as an analyzing tool for the speed on two-lane roads, and the impact of road alignment on motorists was also presented [19,20]. Van Der Horst et al. (2007) inspect the effect of roadside infrastructure on drivers' rapidity and cross positioning of their vehicles in their driving simulator research. They investigated some methods for inducing qualitatively distinct patterns of subjective response using driving simulators. [21]. Yan et al. (2008) considered if a driving simulator could measure traffic safety at signalized junctions and found a novel method by comparing crash analysis for field data with surrogate safety measures from the simulator [22]. De Winter et al. (2009) developed a theoretical framework to measure driver expertise in work performance, infringements, and mistakes [23]. Francesco Galante (2010) et al. analyzes the speed of cars on a portion of a rural road that intersects a medium-sized town area in 2 different design scenarios, including urban transport management [24]. Maya Abou-Zeid (2011) et al. reviewed university students' aggressive driving behavior by utilizing a driving simulator to simulate various traffic situations and evaluate drivers' reactions to those events [25]. A. Calvi (2012) et al. studied the findings of a driving simulator study that looked at performance when entering a

divergence region and decelerating during the exiting maneuver [26]. Basacik (2012) et al. looked into how singing while driving impacts driver performance. Their findings show that singing while driving had no noticeable effect on driving performance compared to only listening to music [27]. Dixit (2014) et al. used a controlled virtual reality experiment that studied the personal hazards of driving behavior [28]. Florence Rosey et al. (2014) piloted a comprehensive survey to calculate the effect of a message shown on a variable message sign ahead of an isolated four-way connected, busy road [29]. A. Calvi (2018) set out to find treatments for excessive motoring speed on two-lane country roads and an efficient solution to excessive speed driving [30]. Some frequent issues like driver distraction, chauffer characteristics, and the road environment were synthesized to establish a solution by Panagiotis et al. (2018). These factors have a significant impact on driving attributive errors [31]. Hussain et al. (2019) assessed the physical and objective environment for the driving simulator [32]. Bleydy et al. (2019) employed an intervention mapping technique as a framework to create their simulated driving treatment. They developed a simulator system that increases the need for a driving simulator [33]. Darko et al. (2020) looked at how traffic signaling elements (road markings and traffic signs) impact young drivers' behavior when driving at night [34].

3. Research Methods

There was no paperwork before regarding the behavioral analysis of drivers in Bangladesh. Therefore, the methodology proposed in this study is simple and understandable. Figure 3 is the algorithm proposed for the study. The analysis consists of the data collection through questionnaire, categorization, data investigation, and sample characteristics.
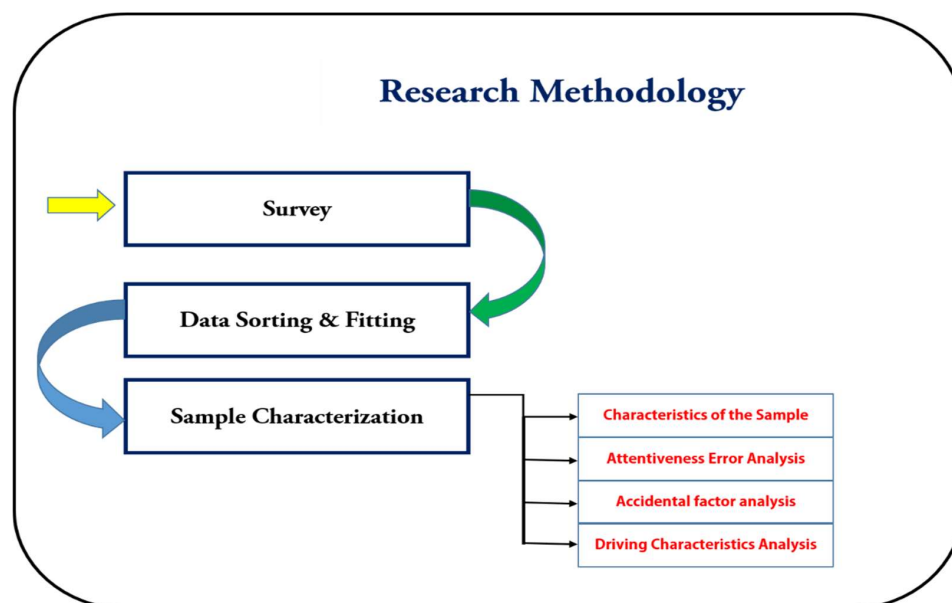

Figure 3. Proposed methodology algorithm.

3.1. Questionnaire

Personal information, drivers' information and attitudes, and chauffers' characteristics were all included in the questionnaire structure. Gender, age, education, and marital status are individual information sources. Drivers' licenses, driving experience, busy running time, and vehicle parts are all used to assemble driver information. The driving attitudes part of the DBQ is linked to the knowledge level and mentality of following traffic rules and regulations in various scenarios where driving-related accidents occur. The characteristic parts questioned the habitual effect and impact details when driving and any habit is a positive or negative influence.

The questionnaire assessment had two sections: respondent graphical stats and DBQ driving behavior measurement. Part 1 included analytic, social, and economic characteristics and related driving license ownership and driver training issues. Part 2 consists of the eighteen-point Driver's Behavior Questionnaire (DBQ), which requires answering all the questions. Infringements and faults were our primary worry. We were very concerned with the effectiveness of the inquiry, so it took crucial adjustments before we gave it to the audience. A detailed 18-point DBQ was then established to scan the community and allow extensive research based on the driving behavior of Bangladesh's drivers.

3.2. Survey

The "Driver Diversionary Strategy and Exhaust Study," a systematic questionnaire based on the internet, was completed in 2021 using Google Forms. However, in Bangladesh, public transportation chauffeurs do not use the internet effectively. Consequently, the number of people who answered the survey online was lower than projected. In addition, the questionnaire was shared on social media sites such as Facebook and Instagram for media platforms. As a result, the sample size is small for the targeted educated and internet-using drivers.

The validity and reliability of the questionnaire data was determined by using SPSS Statistics for Windows, version 27.0 (SPSS Inc., Chicago, IL, USA). The Cronbach's alpha test was used. Normally the value of the alpha ranges between 0 to 1 and the value greater than 0.6 is considered realizable and valid. Cronbach's alpha test revealed that the alpha value is 0.769 (Tables 1 and 2). Hence the questionnaire used for the data collection, and the results derived are valid and reliable.

Table 1. Case processing summary.

		N	**%**
Cases	Valid	96	99
	Excluded [a]	1	1
	Total	97	100.0

[a] Listwise deletion based on all variables in the procedure.

Table 2. Reliability test result.

Reliability Statistics	
Cronbach's Alpha	**N of Items**
0.769	29

3.3. Data Sorting & Fitting

It was completed by seventy participants who were assured to reflect the driving community in Bangladesh prior to screening. We have checked and inspected the data to verify that the data is authentic and genuine. For the following reasons, 26 instances out of 123 have been removed:

- In every case where more than 20% of items were left blank, missing values in lines were removed.
- Answers without respondents' interest, who selected the same relevant responses, were judged biased and deleted from the database.

After sorting these data and around 97 entries have ultimately been picked. There appear to be 91% males and 8% females among them. The result indicates, unlike the statistics, that most drivers are men rather than women. In contrast to marital status, 54% of people are bachelors, while the remainder is married.

3.4. Sample Characteristics

First, simple descriptive statistical analyses were performed to identify numerous significant demographic, sociological, psychological, and behavioral features of Bangladeshi drivers. Our survey participants are mostly 18–30 years old, with only a handful older than 60. Therefore, the majority of drivers on the road are inexperienced and young. In the field study, 70% of drivers who drive on the road have a driver's license, and 30% of drivers have no driving license. As such, a significant proportion of drivers drive illegally on the road as per the statistics of this study. Among the license holders, 80% of the participants obtained their licenses legally, while 20% took them illegally. As unprofessional driving causes accidents and unlawful occurrences on the road, illegality creates a significant impact.

Only four percent of drivers have more than ten years of driving experience among the participants. The Supreme of the drivers has less than 1-year of experience. We found that thirty percent of drivers have 1–3 years' experience, sixteen percent of drivers have 3-7 years, and the rest have 7–10 years of experience. Therefore, most drivers are not very experienced. The number of drivers is illiterate, with a literacy rate of 74.7% in Bangladesh (World data Atlas, 2019) [35]. Educated individuals own or drive private automobiles regularly.

This section may be divided into subheadings. However, it should provide a concise and precise description of the experimental results, their interpretation, and the experimental conclusions that can be drawn.

From Table 3, we can see that 49% of participants drive two-wheelers. However, we also find that 17% of drivers drive three-wheelers, 25% drive four-wheelers, and only 9% drive more than four-wheeler vehicles.

Table 3. Characteristics of the sample.

Variables	Characteristics	Percentage (%)
Gender	Male	91.00
	Female	8.00
Age (years)	>60	1.8
	46–59	11.87
	31–45	11.1
	18–30	75.23
Education Level	PhD	2.6
	Graduate	32.6
	Undergraduate	26.6
	Up to SSC	35.2
	Uneducated	3.00
Marital Status	Married	75
	Bachelor	25
Driving License	Yes	70
	No	30
Driving Training	Yes	77
	No	23
Vehicles User	2 wheelers	49
	3 wheelers	17
	4 wheelers	25
	>4 wheelers	9
Driving Experience (Years)	>10	4
	7–10	10
	3–7	16
	1–3	30
	<1	40

The paper is primarily aimed at educated young people. Thus, participants' age, vehicle use, and education qualification related statistics are graphed in Figure 4. The figure is constructed using the data from Table 3 to validate the findings.
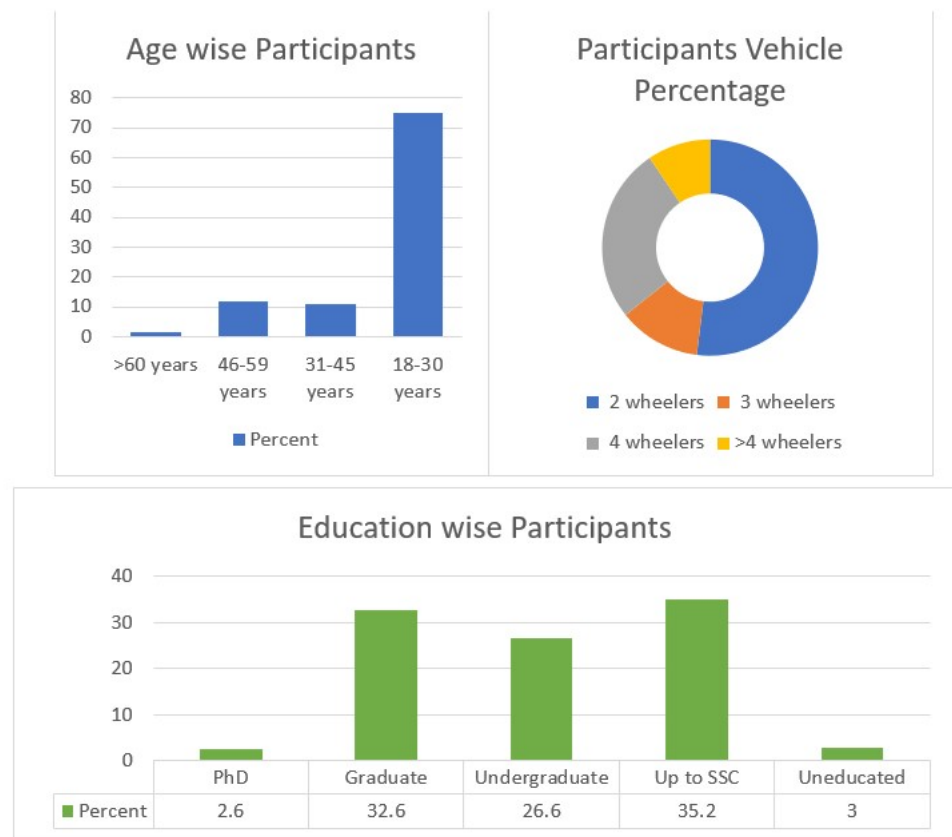

Figure 4. Factor wise participants' percentage graph.

Table 4 reflects the factors of non-attentiveness of the drivers of Bangladesh. 56.4% of individuals follow traffic regulations according to the conditions, while only 27.3% strictly follow traffic regulations, and the remaining people occasionally observe traffic laws.

Table 4. Factor Analysis of attentiveness errors of drivers.

Behavior Errors	Factors	Percentage (%)
Traffic rules errors	Sometimes	16.4
	As per the situation	56.4
	All-time	27.3
Checking mirrors before lane changing/ U turning	Yes	46
	No	54
Inspection of the vehicle before starting	Yes	60
	No	40
Wrong direction driving errors	Time-Saving	47.3
	Disregarded traffic Rules	27.3
	To get more passengers	23.4
	Racing with other drivers	20.0

Before pulling out or changing lanes, 54% of respondents do not check the mirror. These errors, which cause issues for the other cars, are mainly created by inexperienced drivers. According to the survey, 82% of drivers drive more safely than other automobiles during poor weather while others do not.

Our inspection depicts that 60% of the drivers among the participants inspect the automobile before driving, while 40% remain unattended.

Table 5 shows details of a factor named accident. For example, 47.3% of the participants had never been in a car accident. In addition, 32.3% had fewer than three accidents in the past three years, while 20% had more than three.

Table 5. Factors analysis of accidents.

Items	Factors	Percentage (%)
Accident occurs	Never happened	47.3
	Less than 3 times	32.3
	More than 3 times	20.4
Reasons behind accident	Lack of sleep	12.2
	Physical weakness	14.3
	Overtime driving	26.0
	Over speed	12.2
	Mobile phone using	12.2
	Overtaking vehicles	22.3
	Others	0.8
Bad weather errors	Drive slowly	46
	Drive as per the road condition	36
	Drive fast	18
Speed limit maintain	Residential area	80
	High way area	58

The study also reveals that most accidents occur from overtime driving, 26.5%. In addition, sleep deprivation accounted for 12.2% of accidents and 14.3% of physical weakness. The use of a cell phone accounted for only 12.2% of accidents. Finally, excessive speed, tenderness, animal rescue, etc., led to 34.8% of incidents.

Approximately 80% of participants maintain the speed boundary on a residential path-way, while the rest does not follow. The speed limit on the roadway is ignored by 58%. One of the critical factors is the increasing frequency of traffic accidents.

60% of the participants were annoyed while overtaking a vehicle traveling at an average speed, while the others were not. Even passengers encourage 53% of drivers to ignore the speed limit to compensate for lost time. At midnight, 56% of participants complied with the traffic rules.

Some behavioral aspects make every day driving hard. Thus, driving characteristics, the vital factor, has been synthesized in Table 6. According to the follow-on table, 63.6% of individuals agree that chatting on the phone while driving is dangerous. Furthermore, 36.7% of drivers were aware of the negative consequences of texting and driving. Surprisingly, 42.9% are worried about drivers' capacity to interact with passengers. In addition, 34.7% of respondents feel that listening to music while driving might be risky.

Table 6 also illustrates how a motorist responds to a call on their cell phone while driving. 52.7% of drivers stop their automobiles to answer phone calls, while 29.1% do not. However, 10.9% of drivers get calls at an average rate, which is highly dangerous. Furthermore, 23.6% of drivers reduce their speed to take the call.

The corresponding chart (Figure 5) depicts the non-acceptable actions of the driver. 11% of drivers believe that they should not chat with passengers since it might lead to indecisive driving. In addition, 11% of individuals believe that listening to music is pointless. On the other hand, 25% of respondents believe that answering the phone while driving is unnecessary. Furthermore, 20% of the respondents assume that sending and receiving text messages while driving is typical, and 25% believe using social media messengers is unacceptable. Therefore, as per the survey result, it is illegal and should be banned to use a cell phone while driving.

Table 6. Factor analysis of driving characteristics.

Items	Factors	Percentage (%)
Behavior al errors	Talking with passengers	42.9
	Playing Music	34.7
	Messaging on Phone	36.7
	Answering phone call	63.6
Mobile phone using errors	Reduce speed and receive calls	23.6
	Received call at normal speed	10.9
	Stop driving and receive calls	52.7
	Disconnect ringing	29.1
Ignoring Traffics rules errors	Rural area	72.2
	Residential city area	35.6
	Highway area	6.35
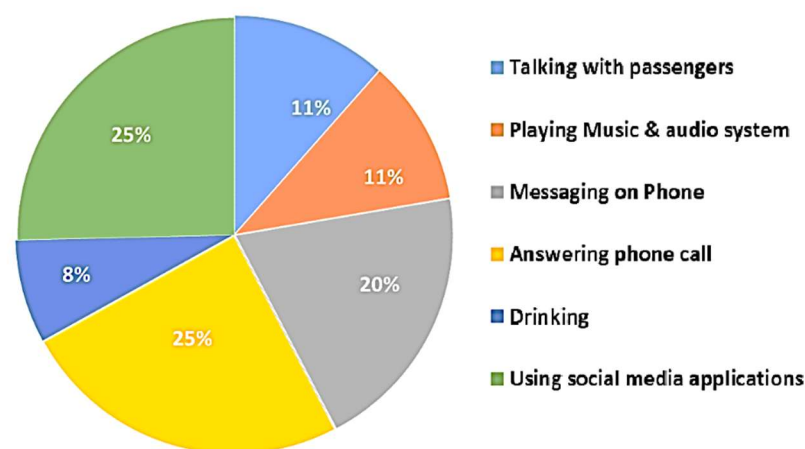
Figure 5. The resulting percentages of various avoiding factors for an ideal driving based on the survey analysis.

4. Result and Discussions

Unusual behavioral aspects of Bangladeshi drivers have been analyzed thoroughly in our paper. A pilot experiment was completed for the investigation with a DBQ in the different driving environments of Bangladesh. The investigation was conducted primarily on educated people because, according to our survey, 99% of the participants were educated. There is no other research completed regarding the non-regular behavior of drivers in Bangladesh, especially educated ones. The survey expresses a boundary range of educated people who drive motor vehicle.

Our study was categorized into three assessments: driver attention, accident mistakes, and driving properties to identify critical points of inappropriate driving patterns. Each factor implies that more practice in the same environment of making errors will solve the issues and make the vehicle reliable on the road. Therefore, our survey with DBQ items can be categorized as sidetracked violations piloted in Bangladesh.

The driver's preparation for training, ownership of a driving pass, and driving experience are weighty prognosticators of interactive mistakes, one of our study's pillar outcomes.

Disoriented infractions are significantly associated with gender, age, and education level. Gender was shown to be a significant predictor of distracted infractions, but this contradicted the findings of our (Bangladesh) research [36,37]. This might be due to the country's lower number of female drivers and the underrepresentation of females (8.92%) in our sample. Furthermore, age and education level were essential predictors of distracted driving offenses. Previous research has found that age is substantially connected to violations [9]. The more a driver is aged and expert at driving, the fewer errors they make compared with young people.

The DBQ is directly reliant on the proposed methodology. However, there are some flaws in the paper's conclusions. First, this statistic does not represent the whole population of Bangladeshi drivers due to the limited sample size. Second, 72.7% of survey respondents are between the ages of 18 and 30, and 91.08% are male drivers; hence the paper predominantly represents the actions of young male drivers.

As per the investigation, it is clear that accidents and making an error while driving depend on driving experiences. So, the more a driver moves in the same environment, the more the driver will gain knowledge. Therefore, it is affirmatively taken as a development factor for growing self-confidence, which will reduce drivers' abnormal and unusual behavior and road accidents [13,38].

The area of the investigation for this paper is small in perspective of Bangladesh's population. However, this is the first academic asset to impact establishing a driving simulator tool to save life and time. Soon, in contrast with the paperwork, developing the policies and physical enhancement of the simulator using a more extensive survey can be done. The more the survey size gets higher, the more perfect results. The same work can be done for specific regions like rural areas, metropolitan areas, urban areas, and highway roads in the future enhancement of our work.

The survey ensures to re-analyze errors in the current road structure and transportation policy. Our central target is to make a safe transportation system by reducing the accident rate and having a minimum death rate. The research will make us more conscious of the unusual behavior of Bangladeshi drivers. According to this research, patrons and transportation officials in Bangladesh would use this case study to build a safe and efficient driving environment. Further research can be done on the uneducated section of drivers in Bangladesh. Later on, the combined results may assist stakeholders in taking the necessary steps to create a better path for drivers and passengers

5. Conclusions

Bangladesh is one of the most hazardous countries globally regarding traffic accidents and deaths. In preparation for the study, model experimentation with eighteen DBQ questions is conducted in several driving scenarios throughout Bangladesh over the educated people mostly. The study's participants are 91.08% men, with 72.70% between 18 and 30. About 1.80% of the participants are over the age of 60. A total of 52% of those interviewed prefer to drive two-wheelers. According to our analysis, approximately 82% of drivers attempt to be safer while driving in hazardous weather conditions. However, 34.8% of accidents are caused by excessive speed, kindness, animal rescue, etc. As per the survey, the driver's educational background, possession of a driver's license, and driving experience are all strong predictors of participatory mistakes. Rural drivers in Bangladesh disregard traffic rules at a rate of 72.20%. The research also looked at drivers' avoidance behaviors, with 25% of participants indicating the worst impact of using social networking software and receiving incoming calls. These results are based on questioners; however, field analysis and model simulations are strongly encouraged to ascertain the findings. The study's findings will increase awareness about the non-desirable driving styles of drivers in the country in providing a safe transit system with a minimal number of accidents and a low death rate. In the future, designers can undertake the same work for specific regions such as rural areas, metropolitan areas, urban areas, and highway roads to improve our work. Some improvements can be made to upgrade the existing road and transport policies from the analysis outcomes. Based on the study's findings, a driving simulator tool might be developed to reduce road accidents and give normal individuals in Bangladesh a safe path.

Institutional Review Board Statement: Ethical confirmation is not required as the research is not causing any conflict of social interest for humans or animals. The research identifies the need for modern technology to enhance the driving behavior of drivers. It doesn't expose the identifications of interviewers as well.

Informed Consent Statement: Informed consent was obtained from all subjects involved in the study.

Data Availability Statement: Not applicable.

Conflicts of Interest: The authors declare no conflict of interest.

References

1. Mathers, C.D.; Boerma, T.; Fat, D.M. Global and regional causes of death. *Br. Med. Bull.* **2009**, *92*, 7–32. [CrossRef]
2. Road_Traffic_Safety. June 2021. Available online: https://en.wikipedia.org/wiki/Road_traffic_safety (accessed on 28 June 2021).
3. Jacobs, G.D.; Sayer, I. Road accidents in developing countries. *Accid. Anal. Prev.* **1983**, *15*, 337–353. [CrossRef]
4. Driving Simulator. 28 June 2021. Available online: https://en.wikipedia.org/wiki/Driving_simulator (accessed on 28 June 2021).
5. Nagiri, S.; Amano, Y.; Fukui, K.; Doi, S. A Study of a Personally Adaptive Driving Support System Using a Driving Simulator. *RD Rev. Toyota CRDL* **2004**, *39*, 24–33.
6. Evans, L. The dominant role of driver behavior in traffic safety. *Am. J. Public Health* **1996**, *86*, 784–786. [CrossRef] [PubMed]
7. de Winter, J.C.F.; Dodou, D. The driver behaviour questionnaire as a predictor of accidents: A meta-analysis. *J. Saf. Res.* **2010**, *41*, 463–470. [CrossRef]
8. Reason, J.; Manstead, A.; Stephen, S.; Baxter, J.; Campbell, K. Errors and violations on the roads: A real distinction? *Ergonomics* **1990**, *33*, 1315–1332. [CrossRef]
9. Fancello, G.; Daga, M.; Serra, P.; Fadda, P.; Pau, M.; Arippa, F.; Medda, A. An experimental analysis on driving behaviour for professional bus drivers. *Transp. Res. Procedia* **2020**, *45*, 779–786. [CrossRef]
10. Wang, F.; Zhang, J.; Wang, S.; Li, S.; Hou, W. Analysis of driving behavior based on dynamic changes of personality states. *Int. J. Environ. Res. Public Health* **2020**, *17*, 430. [CrossRef]
11. Lajunen, T.; Parker, D.; Summala, H. The Manchester Driver Behaviour Questionnaire: A cross-cultural study. *Accid. Anal. Prev.* **2004**, *36*, 231–238. [CrossRef]
12. Mesken, J.; Lajunen, T.; Summala, H. Interpersonal violations, speeding violations and their relation to accident involvement in Finland. *Ergonomics* **2002**, *45*, 469–483. [CrossRef]
13. Sullman, M.J.M.; Meadows, M.L.; Pajo, K.B. Aberrant driving behavior s amongst New Zealand truck drivers. *Transp. Res. Part F Traffic Psychol. Behav.* **2002**, *5*, 217–232. [CrossRef]
14. Nordfjærn, T.; Şimşekoğlu, Ö.S.; Zavareh, M.F.; Hezaveh, A.M.; Mamdoohi, A.R.; Rundmo, T. Road traffic culture and personality traits related to traffic safety in Turkish and Iranian samples. *Saf. Sci.* **2014**, *66*, 36–46. [CrossRef]
15. Mallia, L.; Lazuras, L.; Violani, C.; Lucidi, F. Crash risk and aberrant driving behaviors among bus drivers: The role of personality and attitudes towards traffic safety. *Accid. Anal. Prev.* **2015**, *79*, 145–151. [CrossRef] [PubMed]
16. Kaiser, S.; Furian, G.; Schlembach, C. Aggressive Behaviour in Road Traffic—Findings from Austria. *Transp. Res. Procedia* **2016**, *14*, 4384–4392. [CrossRef]
17. Batool, Z.; Carsten, O. Self-reported dimensions of aberrant behavior s among drivers in Pakistan. *Transp. Res. Part F Traffic Psychol. Behav.* **2017**, *47*, 176–186. [CrossRef]
18. Coechelbergh, T.R.M.; Brouwer, W.H.; Cornelissen, F.W.; van Wolffelaar, P.; Kooijman, A.C. The effect of visual field defects on driving performance: A driving simulator study. *Arch. Ophthalmol.* **2002**, *120*, 1509–1516. [CrossRef] [PubMed]
19. Bella, F. Validation of a driving simulator for work zone design. *Transp. Res. Rec.* **2005**, *1937*, 136–144. [CrossRef]
20. Bella, F. Parameters for evaluation of speed differential: Contribution using driving simulator. *Transp. Res. Rec.* **2007**, *2023*, 37–43. [CrossRef]
21. van der Horst, R.; de Ridder, S. Influence of roadside infrastructure on driving behavior: Driving simulator study. *Transp. Res. Rec.* **2007**, *2018*, 36–44. [CrossRef]
22. Yan, X.; Abdel-Aty, M.; Radwan, E.; Wang, X.; Chilakapati, P. Validating a driving simulator using surrogate safety measures. *Accid. Anal. Prev.* **2008**, *40*, 274–288. [CrossRef]
23. de Winter, J.C.F.; de Groot, S.; Mulder, M.; Wieringa, P.A.; Dankelman, J.; Mulder, J.A. Relationships between driving simulator performance and driving test results. *Ergonomics* **2009**, *52*, 137–153. [CrossRef] [PubMed]
24. Galante, F.; Mauriello, F.; Montella, A.; Pernetti, M.; Aria, M.; D'Ambrosio, A. Traffic calming along rural highways crossing small urban communities: Driving simulator experiment. *Accid. Anal. Prev.* **2010**, *42*, 1585–1594. [CrossRef] [PubMed]
25. Abou-Zeid, M.; Kaysi, I.; Al-naghi, H. Measuring Aggressive Driving Behavior Using a Driving Simulator: An Exploratory Study. In Proceedings of the 3rd International Conference on Road Safety and Simulation, Indianapolis, IN, USA, 14–16 September 2011.
26. Calvi, A.; Benedetto, A.; de Blasiis, M.R. A driving simulator study of driver performance on deceleration lanes. *Accid. Anal. Prev.* **2012**, *45*, 195–203. [CrossRef] [PubMed]

27. Basacik, D.; Reed, N.; Robbins, R. *Smartphone Use While Driving: A Simulator Study*; Published Project Report PPR592; The Transport Research Laboratory: Crowthorne, UK, 2011.

28. Dixit, V.; Harrison, G.W.; Rutström, E.E. Estimating the subjective risks of driving simulator accidents. *Accid. Anal. Prev.* **2014**, *62*, 63–78. [CrossRef] [PubMed]

29. Rosey, F.; Auberlet, J.M. Driving simulator configuration impacts drivers' behavior and control performance: An example with studies of a rural intersection. *Transp. Res. Part F Traffic Psychol. Behav.* **2014**, *27*, 99–111. [CrossRef]

30. Calvi, A. Investigating the effectiveness of perceptual treatments on a crest vertical curve: A driving simulator study. *Transp. Res. Part F Traffic Psychol. Behav.* **2018**, *58*, 1074–1086. [CrossRef]

31. Papantoniou, P.; Yannis, G.; Christofa, E. Which factors lead to driving errors? A structural equation model analysis through a driving simulator experiment. *IATSS Res.* **2019**, *43*, 44–50. [CrossRef]

32. Hussain, Q.; Alhajyaseen, W.K.M.; Pirdavani, A.; Reinolsmann, N.; Brijs, K.; Brijs, T. Speed perception and actual speed in a driving simulator and real-world: A validation study. *Transp. Res. Part F Traffic Psychol. Behav.* **2019**, *62*, 637–650. [CrossRef]

33. Dimech-Betancourt, B.; Ross, P.E.; Ponsford, J.L.; Charlton, J.L.; Stolwyk, R.J. The development of a simulator-based intervention to rehabilitate driving skills in people with acquired brain injury. *Disabil. Rehabil. Assist. Technol.* **2021**, *16*, 289–300. [CrossRef] [PubMed]

34. Babi, D.; Babi, D.; Cajner, H.; Sruk, A.; Fioli, M. Effect of Road Markings and Traffic Signs Presence on Young Driver Stress Level, Eye Movement and Behaviour in Night-Time Conditions: A Driving Simulator Study. *Safety* **2020**, *6*, 24. [CrossRef]

35. Adult-Literacy-Rate. June 2021. Available online: https://knoema.com/atlas/Bangladesh/topics/Education/Literacy/Adult-literacy-rate#:~{}:text=Bangladesh%20%2D%20Adult%20(15%2B)%20literacy%20rate&text=In%202019%2C%20adult%20literacy%20rate,average%20annual%20rate%20of%205.66%25 (accessed on 28 June 2021).

36. Wickens, C.M.; Toplak, M.E.; Wiesenthal, D.L. Cognitive failures as predictors of driving errors, lapses, and violations. *Accid. Anal. Prev.* **2008**, *40*, 1223–1233. [CrossRef] [PubMed]

37. Rasouli, M.R.; Nouri, M.; Zarei, M.R.; Saadat, S.; Rahimi-Movaghar, V. Comparison of road traffic fatalities and injuries in Iran with other countries. *Chin. J. Traumatol. Engl. Ed.* **2008**, *11*, 131–134. [CrossRef]

38. Xie, C.-Q.; Parker, D. A social psychological approach to driving violations in two Chinese cities. *Transp. Res. Part F Traffic Psychol. Behav.* **2002**, *5*, 293–308. [CrossRef]