

SONY KULSHRESTHA¹

Analysis of the New Road Safety and Transportation Measures Enforced in India²

Submitted: 30.04.2024. Accepted: 4.06.2024

Abstract

Over the past few decades, there has been an increased number of deaths in road accidents. The joint efforts to lower the rate of accidents and deaths are visible in the latest analysis reports of Motor Vehicles Act amended in 2019 over the thirty years of applicability of the Motor Vehicles Act of 1988. In the current research projects, the researcher examined the implications of the new road safety measurements included in the provisions of the 2019 Amendment Act and investigated the effectiveness of new safety parameters by comparing the percentage of accidents before and after the enforcement of the Act. The researcher has analysed a codified and narrative text to examine the provisions of this Amendment Act of 2019 through the reports of National Crime Records Bureau, Ministry of Home Affairs, and Ministry of Road Transport and Highways (MORTH). The analysis of the data gathered shows that the provisions of the Act are meant to give effective tools to improve road safety measures.

Keywords: motor vehicles Amendment Act of 2019, over-speeding, road-accidents, road-transport, traffic-rules.

¹ Sony Kulshrestha, PhD – Manipal University Jaipur (India); e-mail: sony.kulshrestha@muj.manipal.edu; ORCID: 0000-0002-8184-4998.

² The research in this article has not been supported financially by any institution.

SONY KULSHRESTHA

Analiza nowych środków bezpieczeństwa i transportu drogowego wprowadzonych w Indiach³

Streszczenie

W ciągu ostatnich kilku dekad uwagę zwraca rosnąca liczba ofiar śmiertelnych wypadków drogowych. Wspólne wysiłki na rzecz zmniejszenia liczby wypadków i ofiar śmiertelnych są widoczne w najnowszych raportach analitycznych ustawy o pojazdach silnikowych (nowelizacja) z 2019 r. publikowanych na przestrzeni trzydziestu lat ustawy o pojazdach silnikowych z 1988 roku. W niniejszej pracy zbadano implikacje nowych pomiarów bezpieczeństwa drogowego uwzględnionych w przepisach ustawy nowelizującej z 2019 r. i zanalizowano skuteczność nowych parametrów bezpieczeństwa poprzez porównanie odsetka wypadków przed i po wejściu w życie ustawy. Autor przeprowadził analizę zakodowanego i narracyjnego tekstu, aby zbadać przepisy nowelizacji tej ustawy z 2019 r. na podstawie raportów Krajowego Biura Rejestru Przestępstw, Ministerstwa Spraw Wewnętrznych oraz Ministerstwa Transportu Drogowego i Autostrad (MORTH). Analiza danych pokazuje, że przepisy ustawy mają dać skuteczne narzędzia poprawy bezpieczeństwa ruchu drogowego.

Słowa kluczowe: ustawa zmieniająca pojazdy silnikowe z 2019 r.,
przekroczenie prędkości, wypadki drogowe, transport
drogowy, przepisy ruchu drogowego.

³ Badania wykorzystane w artykule nie zostały sfinansowane przez żadną instytucję.

Introduction

Around 733,000 individuals died in the previous 5 years in India because of road accidents, as indicated by road safety experts and common society associations at a meeting where information provided by World Health Organization has been quoted.⁴

A significant step taken by the relevant ministry in the area of road safety is the enforcement of the Motor Vehicles Amendment Act of 2019, called the MVAA.⁵ The provisions of the MVAA, which focus on road safety measures that include high penalties (in comparison to the original Act) for traffic rules violations, monitoring on automatic electronic mode, juvenile driving being strictly prohibited, and the penalty has been increased for violation, vehicle unfitness, and driving test is automated now to minimise the human interference and influence. These are few glimpses of the effective changes incorporated under the Amendment Act.⁶

As per the objectives of the Act, the aim is to prevent people from ignoring road traffic instructions. There are now substantial fines for driving in a cast, without a driving license, risky driving, over-speeding, and so forth. These punishments will be increased by 10% consistently on April 1, as told by the central government. The new Amendment Act has likewise broadened the period for re-issue of driving licenses after their expiry from one month to one year. With the restoration postponed over a year, the driver will need to take a test of capability. The Amendment Act likewise vows to relieve those individuals who render emergency clinical or non-clinical help to a casualty of an accident from any considerate or illicit onus. The base fine for demise or appalling damage because of accident has been increased substantially.

⁴ World Health Organization, *Road traffic injuries*, 2021. Available from: <https://www.who.int/news-room/fact-sheets/detail/road-traffic-injuries> (access: 1.05.2021).

⁵ Motor Vehicles (Amendment) Act, 2019 (No. 32 of 2019).

⁶ *Motor Vehicles Act 1988 – as amended by Motor Vehicles (Amendment) Act 2019*, Sharda Book House 2019.

Literature review

India needs to develop a strong and high-tech machinery to prevent road accidents, which may include automatic monitoring of the road condition, occasional issuance of proper guidelines of use of road, traffic policy enforcement, and maintain vehicles in good conditions.⁷

India witnessed the highest rate of deaths by road accidents in comparison to the data from 199 countries in the world during 2018–19.⁸

As per an earlier study, limited access and inaccurate data, inadequate evaluation of the preventive efforts, and limited awareness of the problems are the main causes of road traffic injuries.⁹

Interestingly, in another study of blood alcohol positives, data indicates that most of the victims were motor cyclists and vehicles responsible for the accidents were primarily trucks and buses. The road was straight and not curved and accidents happened in majority in daytime.¹⁰

Drinking and driving has a significant impact on road accidents, which often lead to death of victims.¹¹

Death rate by road traffic injuries might be reduced by providing a speedy arrangement like prehospital transport and trauma care in hospitals.¹²

Study of various causes of road accidents involves the use of the smartphone as the device of detecting traffic rules violation like jumping the red light, rash driving, driving in wrong lane, and many more.¹³

Strict punishment should be levied on persons who violate traffic rules and put the lives of road users at risk. Establishment of emergency trauma centres should be treated as prerequisites to give license to a hospital.¹⁴

⁷ R. Dandona, G.A. Kumar, G. Gururaj *et al.*, *Mortality due to road injuries in the states of India: The Global Burden of Disease Study 1990–2017*, "The Lancet Public Health" 2020, 5(2), pp. e86–e98.

⁸ Ministry of Road Transport and Highways, 2019.

⁹ B. O'Neill, Role of Advocacy, Education, and Training in Reducing Motor Vehicle Crash Losses, *Proceedings from WHO meeting to Develop a 5-Year Strategy on Road Traffic Injury Prevention*, Geneva 2001.

¹⁰ P. Arora, A. Chanana, H.R. Tejpal, *Estimation of blood alcohol concentration in deaths due to roadside accidents*, "Journal of Forensic and Legal Medicine" 2013, 20(4), pp. 300–304.

¹¹ A. Das, H. Gjerde, S.S. Gopalan, P.T. Normann, *Alcohol, Drugs, and Road Traffic Crashes in India: A Systematic Review*, "Traffic Injury Prevention" 2012, 13(6), pp. 544–553. doi: 10.1080/15389588.2012.663518.

¹² M. Hsiao, A. Malhotra, J.S. Thakur, J.K. Sheth, A.B. Nathens, N. Dhingra, P. Jha, *Road traffic injury mortality and its mechanisms in India: nationally representative mortality survey of 1.1 million homes*, "BMJ Open" 2013, 3(8), pp. 1–9.

¹³ R. Bhandari, B. Raman, V. Padmanabhan, *Poster: Improving Road Safety through Smart-Sensing*, 2016.

¹⁴ A. Chandrasekharan, A.J. Nanavati, S. Prabhakar, S. Prabhakar, *Factors Impacting Mortality in the Pre-Hospital Period After Road Traffic Accidents in Urban India*, "Trauma Monthly" 2016, 21(3).

The data available in literature come from studies carried out to calculate the injuries and death rate by accidents on road, which is affected by many factors like condition and size of roads, use of safety devices and following the traffic rules etc. The existing studies interpret the causes and rate of road accidents based on pre- and post-effects of the implementation of the Motor Vehicles Act of 1988. Despite having the Act of 1988 with good provisions of prevention, the Act of 2019 was introduced with the intention to bring down the number of road accidents and fatalities, keeping in view the rising road lengths, the growing population and number of vehicles in use. In the present study, efforts have been done to analyse the effectiveness of the Motor Vehicles Amendment Act of 2019 and see whether it has fulfilled the expectations and objectives of the lawmakers to bring down the road accidents and fatalities or not. The present study is a sample limited to the analysis of the data for the months of September 2019 to December 2019, which is available after the enforcement of the Amendment Act of 2019. Due to the Covid-19 pandemic, the data for the year 2020 are not currently available.

Analysis and results

Road accidents have been divided into road condition and length category, type of causal vehicle, and causes of road accidents category, which e.g. bring out the following trends of road accidents.¹⁵

The Compound Annual Growth Rate (CAGR)

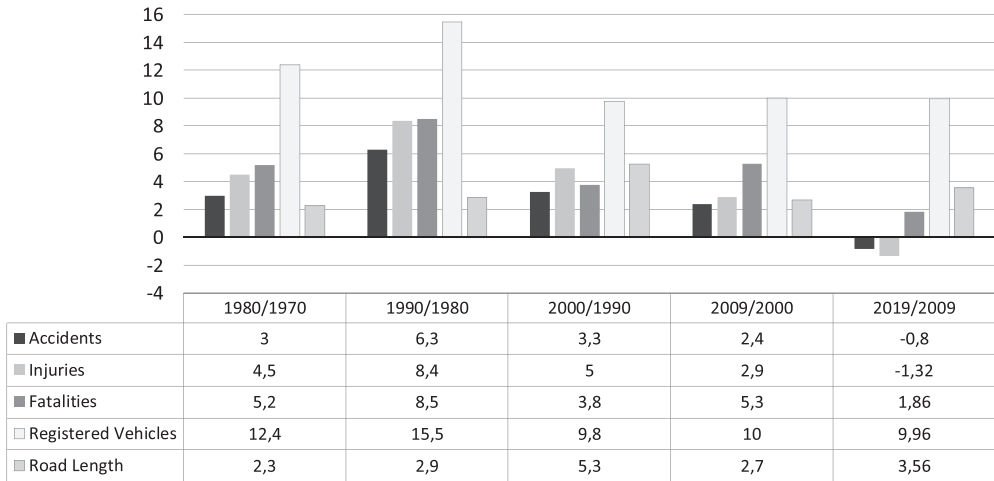
The number of accidents, injuries, fatalities, and motor vehicles (registered) is fluctuating in the pre and post era of 1988 (this was the enforcement year of the original Motor Vehicles Act).¹⁶

For the categories of accidents, fatalities, and injuries, the CAGR was highest during the period 1980–1990 if considered with the length of road and number of registered vehicles (see Figure 1). The CAGR for the period 2009–2019 is at the lowest as compared to the previous four decades.

¹⁵ Ministry of Road Transport and Highways, 2019.

¹⁶ Investopedia, *CAGR: Compound annual growth rate, 2021*, <https://www.investopedia.com/terms/c/cagr.asp#:~:text=Formula%20and%20Calculation%20of%20CAGR,-C%20A%20G&text=To%20calculate%20the%20CAGR%20of,one%20from%20the%20subsequent%20result> (access: 1.05.2021).

Figure 1. Compound Annual Growth Rate (CAGR) in percentage



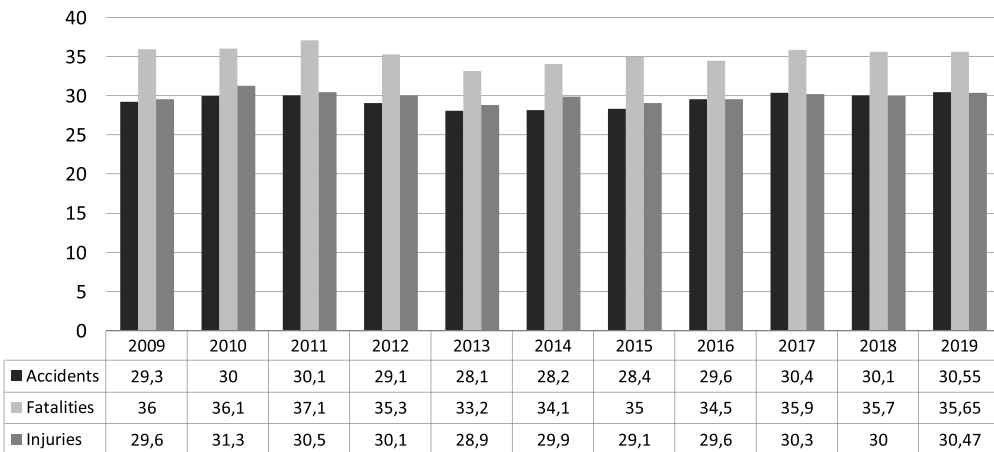
Source: Ministry of Road Transport and Highways, 2019.

Classification of accidents

Accidents in terms of classification of roads

The data on accidents, fatalities, and injuries shows the higher percentage on national highways and other road in comparison to state highways.

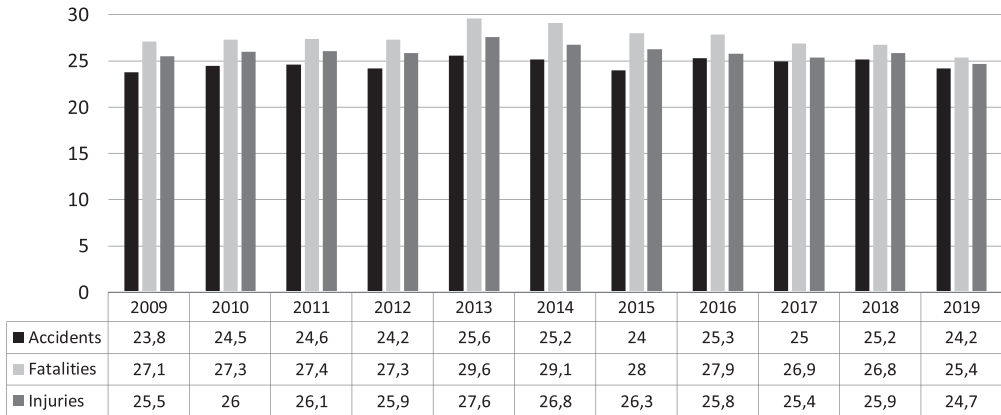
Figure 2. National highways – percentage of accidents and percentage of persons killed and injured



Source: Ministry of Road Transport and Highways, 2019.

The percentage of accidents, fatalities, and injuries on national highway is showing almost same results from 2009 to 2019 (see Figure 2).

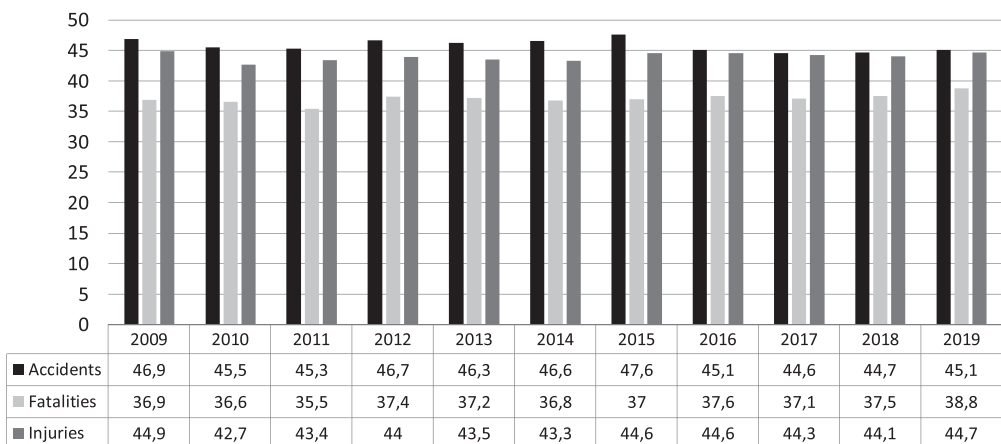
Figure 3. State highways – percentage of accidents and percentage of persons killed and injured



Source: Ministry of Road Transport and Highways, 2019.

The percentage of accidents, fatalities, and injuries on state highways slightly decreased in the year 2019 i.e. 24.2%, 25.4% and 24.7% respectively in comparison to the year 2018 where it was 25.2%, 26.8% and 25.9% respectively (see Figure 3).

Figure 4. Other roads – percentage of accidents and percentage of persons killed and injured



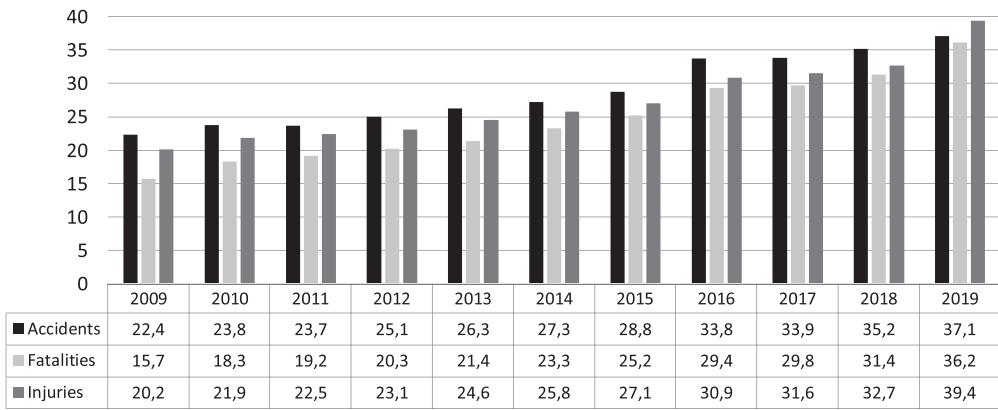
Source: Ministry of Road Transport and Highways, 2019.

The percentage of accidents, fatalities, and injuries on other roads shows almost the same results from 2009 to 2019 (see Figure 4).

Accidents in terms of involvement of vehicle type

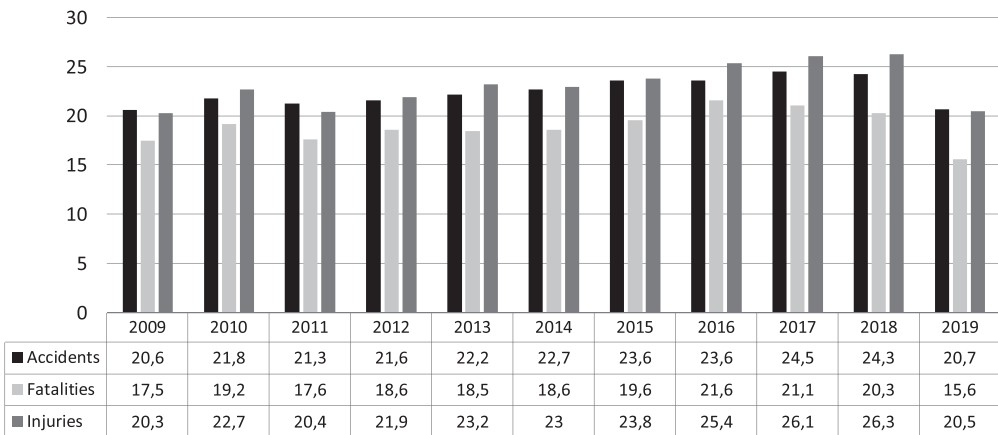
The data on accidents, fatalities, and injuries show the higher involvement of two wheelers in total road accidents (35%), light motor vehicles like cars, taxis, vans, jeeps are second with a total share of (18.6%), followed by a share of heavy motor vehicles like trucks and buses (10.7%).

Figure 5. Two wheelers – percentage of road accidents, fatalities and injuries



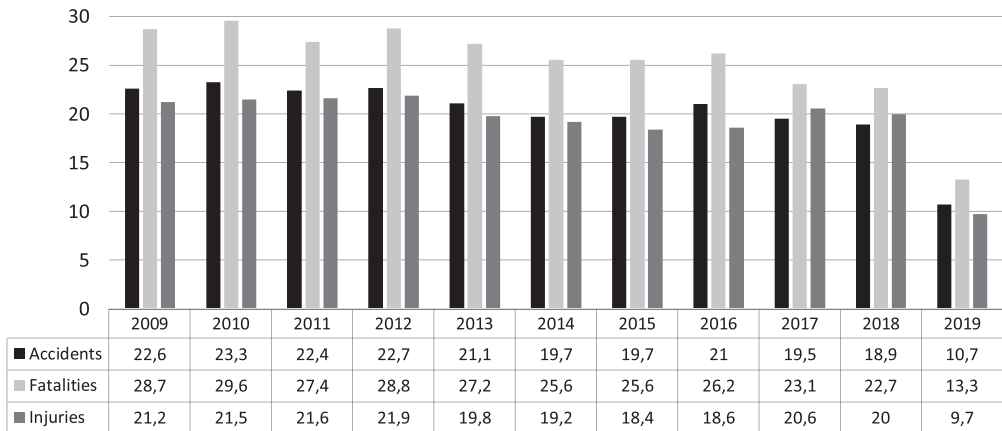
Source: Ministry of Road Transport and Highways, 2019.

Figure 6. Light motor vehicles (car / jeep / van / taxi) – percentage of road accidents, fatalities and injuries



Source: Ministry of Road Transport and Highways, 2019.

Figure 7. Heavy motor vehicles (bus / truck / lorry / other heavy vehicles) – percentage of road accidents, fatalities and injuries

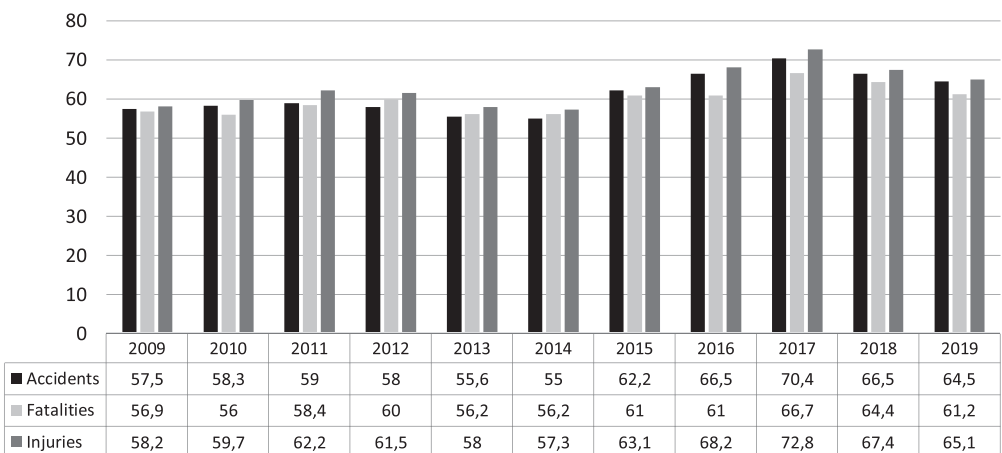


Source: Ministry of Road Transport and Highways, 2019.

Major causes of road accidents

The high financial cost of fatalities and injuries caused by road accidents, along with the need for effective policy solutions to curb these accidents, highlights the importance of examining their underlying causes. The investigation conducted on the accidents as far as causal variables are concerned uncovers that faulty driving is the absolute most significant factor behind accidents, fatalities, and injuries.

Figure 8. Over-speeding – percentage of road accidents, fatalities and injuries

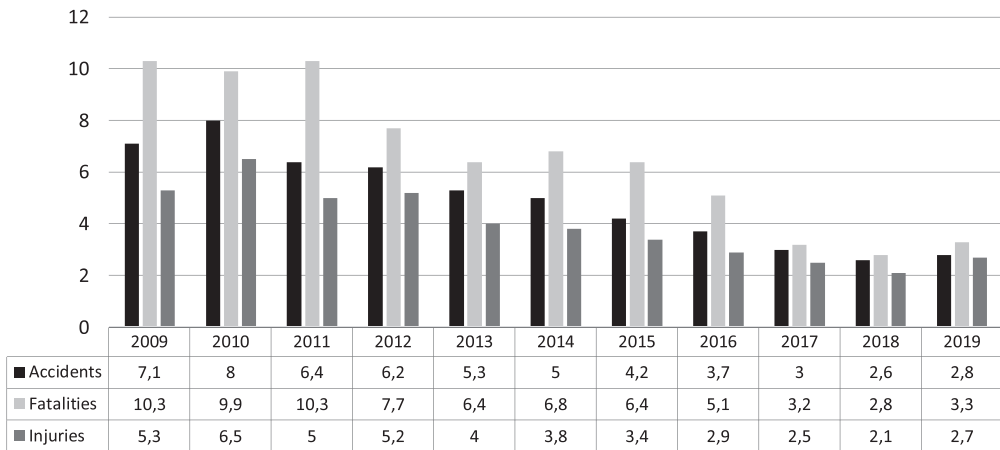


Source: Ministry of Road Transport and Highways, 2019.

Under the class of causes of accidents there are accidents caused and fatalities due to 'exceeding the permitted speed', constituting to the highest share of accidents in the year 2017 (70.4%) and the lowest share in the year 2014 (55%). In the year 2019 it is 64.5%, which is lower than the previous year. In terms of fatalities, the rate is the highest in the year 2017 (66.7%) and the lowest in the year 2010 (56%). In the year 2019 it is 61.2%, which is lower than the previous year (see Figure 8).

Punishment for hustling and speeding has been modified to involve detainment of as long as one month and additionally a fine of up to 500 rupees for first offense; detainment of as long as one month or a fine of up to 10,000 rupees for second offense. The increment in the rate of the fine in the Amendment Act may be the cause of decreasing numbers.

Figure 9. Drunk-driving / consumption of alcohol & drug – percentage of accidents, fatalities and injuries



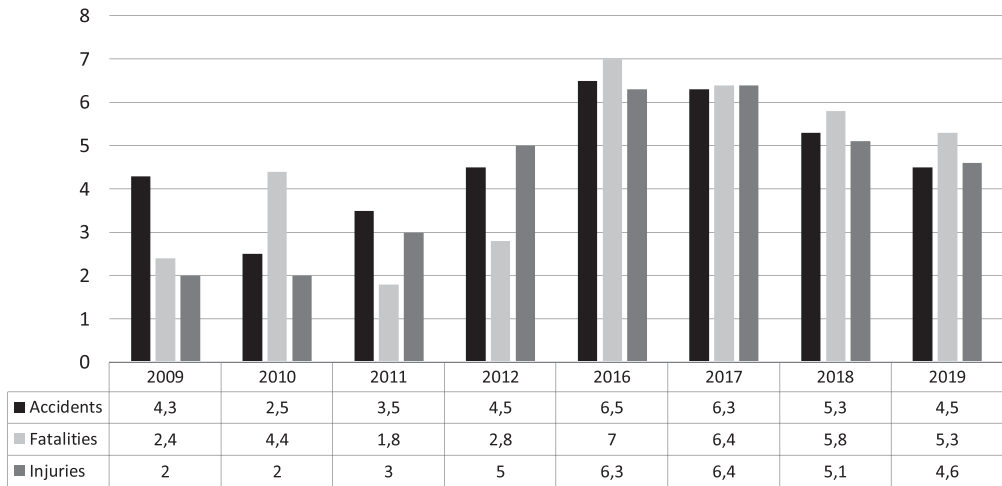
Source: Ministry of Road Transport and Highways, 2019.

Under this class of causes of accidents, accidents and fatalities caused due to 'intake of alcohol/drugs by drivers' accounted for the highest share of accidents in the year 2010 (8%) and the lowest share in the year 2018 (2.6%). In the year 2019 it is 2.8%, which is almost like the previous year. In terms of fatalities, the rate is the highest in the year 2009 and 2011 (10.3%), and the lowest in the year 2018 (2.8%). In the year 2019 it is 3.3%, which is higher than of previous year but on an average at a lower degree in terms of percentage (see Figure 9).

Punishment for drunk driving has been changed to involve half a year of detainment or 10,000 rupees in fine for the first offense, two years' detainment or a fine of 15,000 rupees for second offense.

Under this class causes of accidents, accidents and fatalities caused due to 'accidents by wrong side driving/lane indiscipline/over speeding', an evident decreasing rate of an accidents (4.5%), fatalities (5.3%) and injuries (4.6%) has been noticed.

Table 10. Driving on wrong side / Lane indiscipline / Over loading
– Percentage of road accidents, fatalities and injuries



Note: Data on accidents by wrong side driving/lane indiscipline/over speeding of the years 2013–2015 is not available.

Source: Ministry of Road Transport and Highways, 2019.

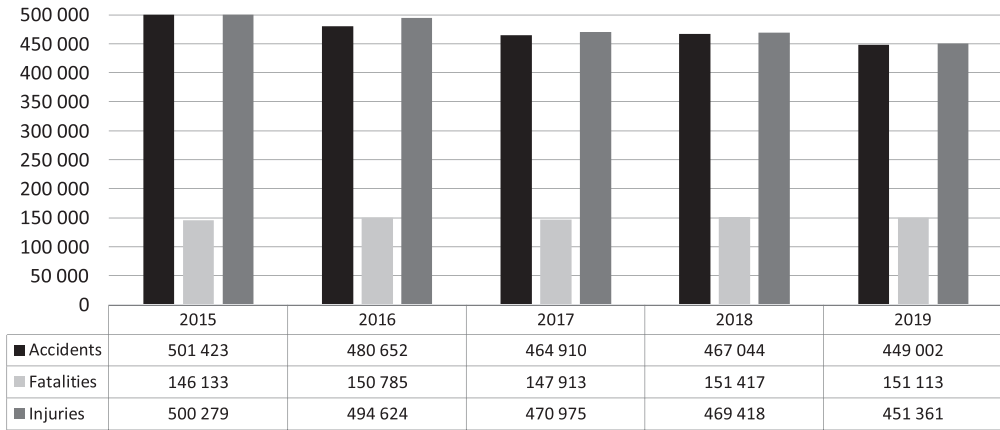
Implications of the Amendment Act on the rate of road accidents in India

The study analyses the impact of the amended provisions on the rate of accidents, fatalities, and injuries by doing comparative analysis of the data of road accidents.

Comparison of rate of road accidents, number of persons killed and injured in the last five years (2015–2019)

A comparison of the yearly data from 2015 to 2019 reveals the remarkable decrease rate of accidents by 18,042 (3.86%), the number fatalities decreased slightly by 304 (0.20%) and the number of injuries decreased by 18,057 (3.85%) (see Figure 11).

Figure 11. Road accidents, Number of fatalities and injuries: 2015–2019 (in numbers)

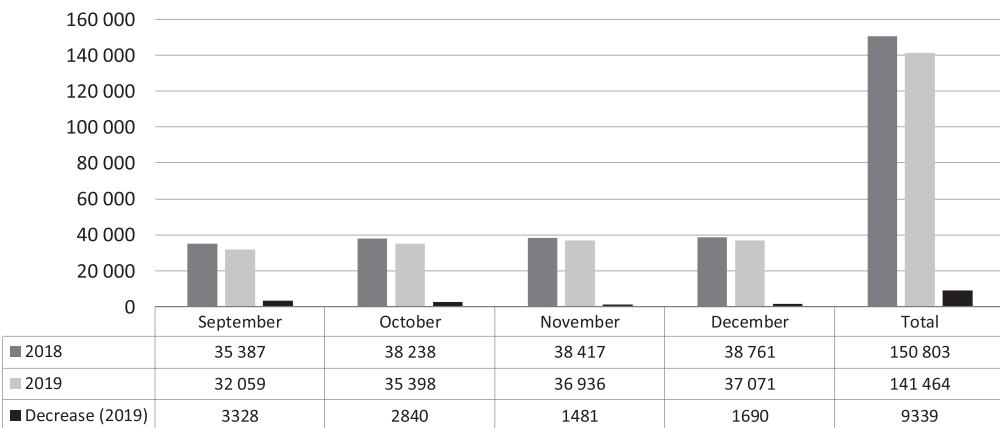


Source: Ministry of Road Transport and Highways, 2019.

Month-wise comparison of accidents and fatalities across the country

After the adoption of the Amendment Act of 2019, a decrease in the percentage of both accidents and fatalities was noticed based on a month-wise comparison of the data over the period September to December 2019.

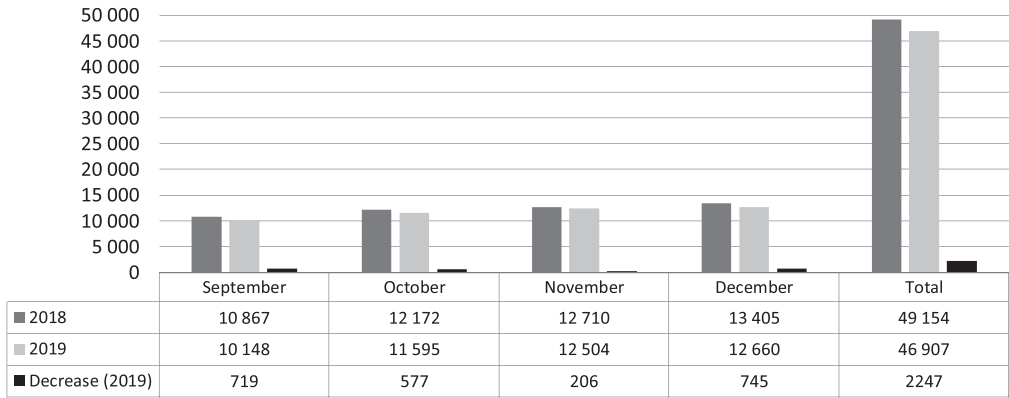
Figure 12. Month-wise comparison of accidents



Source: Ministry of Road Transport and Highways, 2019.

The month-wise comparison of data under the category of ‘accidents’ shows a visible decline at the rate of 9.40%, 7.43%, 3.86%, 4.86% and 6.19% in the month of September, October, November, December and total respectively (see Figure 12).

Figure 13. Month-wise comparison of fatalities



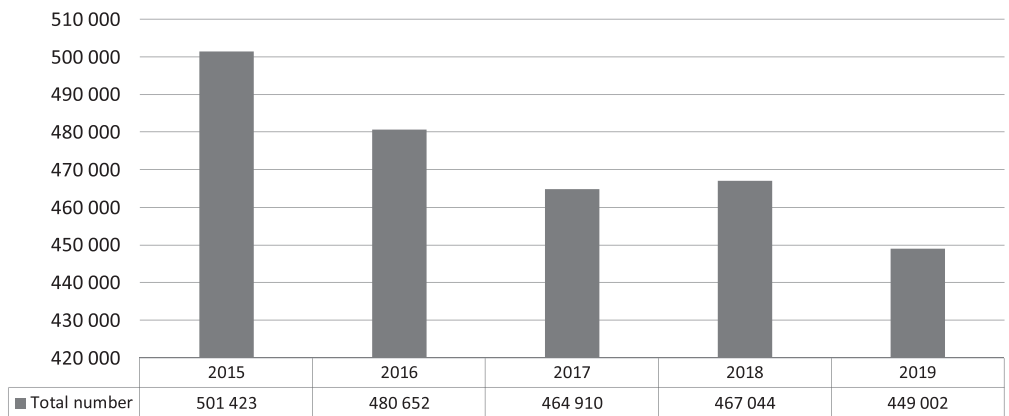
Source: Ministry of Road Transport and Highways, 2019.

The month-wise comparison of data under the category of ‘fatalities’ shows a visible decline at the rate of 6.62%, 4.74%, 1.62%, 5.56% and 4.57% in the month of September, October, November, December and total respectively (see Figure 13).

Comparison of rate of loss of life/lives or grievous injury, minor injury, or non-injury in road accidents

Comparative data of 2015 to 2019 shows a decreasing number of injury accidents in various categories. In comparison with year 2018 (0.5%), there is an evident decrease of injury and non-injury accidents by 3.9% in the year 2019 (see Figure 14).

Figure 14. Trends in fatal accidents, grievous injury accidents, minor injury accidents, and non-injury accidents

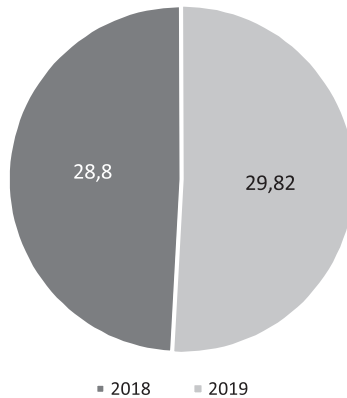


Source: Ministry of Road Transport and Highways, 2019.

Negligence in the use of protective equipment – helmets and seatbelts

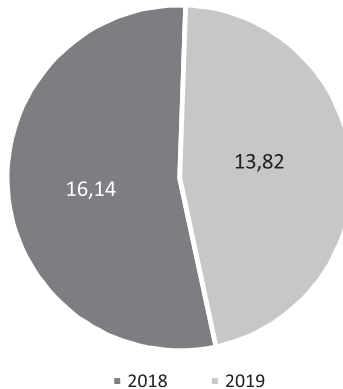
The gravity of an accident can be decreased by using protective equipment, which is meant to be used by the drivers and passengers. The data on the rate of deaths in road accidents due to not using helmets and seatbelts are summarised in the Figures 15 and 16.

Figure 15. Non-use of helmet: percentage of share in total fatalities



Source: Ministry of Road Transport and Highways, 2019.

Figure 16. Non-use of seatbelt: percentage of share in total fatalities



Source: Ministry of Road Transport and Highways, 2019.

Non-wearing of helmets by two-wheeler drivers accounted for 29.82% accident deaths. Non-wearing of seat belts in four wheelers accounted for 13.82% of total road accident deaths in the country in 2019.

Discussion

The analysis of the accident data from Ministry of Road Transport and Highways, 2018 and 2019 gave rise to the following observations:¹⁷

- (i) The comparison of CAGR as given in Figure 1 reveals the drop in the number of accidents and accident-related fatalities in the period 1990–2019. The reason for these slight decreases pertains to the enforcement of the Motor Vehicles Act of 1988. After analysing the data, it was the policymakers decided that although the numbers decreased, the rate of accidents could be controlled more effectively if some amendments and modifications would be incorporated in the provisions of the principal Act.
- (ii) Within the category of road condition, national highways, and other roads, there are more accidents in counting and percentage, i.e. 30.2% and 45% respectively. In terms of deaths, the share is 35.7% and 38% respectively. State highways, due to medium road network coverage, accounted for 25.2% and 26.8% of accidents and fatalities, respectively.
- (iii) Under the category of vehicles, accidents (35.2%) and deaths (31.4%) by two-wheelers made for the highest share. With the share of 24.3% and 20.3% accidents and deaths (respectively), light motor vehicles comprising cars, jeeps, vans, and taxis as a category, come second.
- (iv) If we are talking about the category of traffic rule violations, then the rate of accidents and deaths is in the following descending order – over speeding, wrong side driving, and drunk-driving, with the share of 64.4%, 5.8% and 2.8% in deaths by accidents respectively.

While it is true that the increase in fines may be worrisome to other motorists, it is important to note that these levies are fines – not taxes; therefore, citizens will only incur a penalty or fine if they have the intention to violate the traffic laws. Although breaches such as speeding, non-use of a helmet, non-use of seatbelts, and distracted driving are known killers on the roads, there are still many people who are not aware of that.¹⁸

Those who don't offer route to an ambulance or fire unit may before long need to confront a heavy fine of as much as ten thousand rupees or/and detainment of as long as a half year.

¹⁷ Ministry of Road Transport and Highways, 2019.

¹⁸ R. Pal, A. Ghosh, R. Kumar *et al.*, *public health crisis of road traffic accidents in India: Risk factor assessment and recommendations on prevention on the behalf of the Academy of Family Physicians of India*, "Journal of Family Medicine and Primary Care" 2019, 8, pp. 775–783.

Their driving license could be suspended on the off chance that they are found speeding, hustling, or driving after consumption of alcohol, among others.

Rules related to the issue of driving license are now tougher than ever. The matter will be regulated centrally through a special register. Now, the driving test is fully automated without the interference of anybody to ensure safe driving skills. The Motor Vehicles Amendment Act (MVAA) of 2019 introduces a centralised, digitalised licensing system to streamline the distribution and renewal of driving licenses. Section 25A mandates the establishment of a National Register for Driving Licenses to facilitate this process.¹⁹

Now, taxis like Ola, My Cab, and Uber are under the control of the government. The Central Government's power to regulate such transportation companies is extended by including the word 'aggregator' in the Act.

Manufacturers of automobiles need to be more careful regarding the quality of the vehicles, and road contractors must do their work with due diligence to avoid penal action against them.

Indian roads are known to be some of the most unsafe roads in the world; they have several dangerous features like sharp curves and very wide and deep potholes that have caused many injuries and even deaths. The urgent need to upscale the degree of accountability of road designers and engineering organisations has been quite evident for as long as drivers have taken on streets. Implementation of Section 198A of the Motor Vehicle Amendment Act of 2019 has provided substantial upgrades to effectively put an end to this crucial issue. It is thanks to this legal mechanism that concerned authorities can be prosecuted in case of default in respect to the adopted guidelines for roads design and maintenance. This is a crucial move aimed at enhancing safety on roads.²⁰ Alongside eradicating corruption and bribery, this amendment Act that was passed in the year 2019, introduced electronic enforcement. It is a system that streamlines, disassociates with individuals, and remains impersonal law enforcement processes. This provision permits the authorities to make use of comprehensive equipment and speed detection cameras/guns and radar/laser-based technologies as the extensive violation detection source with the aim of avoiding human error and interference. However, the compounding of

¹⁹ R.S. Rivan, *Motor Vehicle (Amendment) Act 2019 comes into Force*, "Autocar" 2019. Available from: <https://www.autocarindia.com/car-news/motor-vehicles-amendment-act-2019-comes-into-force-413978> (access: 2.05.2021).

²⁰ Transport Research Wing, *Road accidents in India – 2018*, New Delhi: Ministry of Road Transport & Highways, Government of India 2019.

penalties under Section 210B by almost three times to violating authorities may make them even more sensitive to observing and documenting regulations.²¹

The key provisions that make the Motor Vehicle Amendment Act (MVAA) unique are the increased liability for violations and the corresponding punishments. And on the other hand, the law grants commuters' steadfast rights. The Act, however, provides further legal consideration to the underlying common legal principles of the Good Samaritan Law, as stated by the Supreme Court. This indemnifies protected men who rescue victims from legal and administrative complications, thus creating an environment of help and responsibility on Indian roads.²²

Over fifteen states in India have already implemented the e-Challan system that allows traffic offenders to check all information on the violation of traffic rules committed by them and pay fines online within 60 days from the date of its issuance. Such contactless and time giving enforcement leaves minimum space for any unwanted, illogical, and heated arguments or other engagements with any traffic inspector and may control bribery incidences.²³

The Supreme Court of India has ordered to speed up the grant of compensation by using electronic means in road accident cases. It includes the filing of report by police, which shall be completed within forty-eight hours by using email or on website specially launched for it and disbursement of money by insurance companies.²⁴

Observations and recommendations

The Motor Vehicle Amendment Act of 2019 has imposed a steep hike in penalties for road traffic offenders, just for the sole purpose of bringing road discipline and save the lives of people in road accidents in India. After analysing the Amendment Act and accident-related data, here are few observations and recommendations:

²¹ "Panel wants Body Cams on Traffic Cops", RTO Officials, "Economic Times" 23.12.2017, <https://economic-times.indiatimes.com/news/politics-and-nation/panel-wants-body-cams-on-traffic-cops-rto-officials/articleshow/62219376.cms> (access: 07.01.2022).

²² *Guide to Motor Vehicles Act 1988 – As Amended by Motor Vehicles Amendment Act 2019*, September 2019 edition, Taxmann Publication 2019.

²³ S. Das, C.P. Gireesh, *Motor Vehicles Bill, 2019: Government seeks to put India on a safer road*, "Live Mint", 2019, August 1. Available from: <https://www.livemint.com/politics/policy/motor-vehicles-bill-2019-govt-seeks-to-put-india-on-a-safer-road-1564692285376.html> (access: 11.12.2019).

²⁴ A.A. Choudhary, *SC expedites grant of compensation in road accident cases*, "Times of India" 17.03.2021, <https://timesofindia.indiatimes.com/india/sc-expedites-grant-of-compensation-in-road-accident-cases/articleshow/81541433.cms> (access: 15.07.2022).

1. The 2019 Act should be uniformly implemented across all states in India, as many states have yet to adopt the new Amendment Act, undermining the integrity of the Indian legal system. Once the Act is applied nationwide, public support and awareness can be fostered through the promotion of best practices.
2. Popular/New technological tools/systems can be recommended for public awareness, social marketing, and media activities.
3. Law-abiding citizens will help in automatic decrease in number of traffic offences on Indian roads.
4. Risk factors like speeding, drinking, no seatbelt, no helmet, or poor-quality helmet, can be controlled with **'automated continuous announcement'** on public platforms and reminders through **'public awareness programmes,'** so that people get to know everything about traffic rules and safety.
5. The Act can be introduced as a **'Compulsory Course'** for undergraduate students just like Environmental Study and Value & Ethics courses.
6. Establishment of the **'Office of Ombudsman'** to make complaints against the enforcing authorities for violation or non-compliance of the provisions.
7. **'Periodical Training'** for traffic control personnel in the law and its procedural application.
8. Providing toll free **'helpline'** to contact in case of emergency assistance.
9. The Motor Vehicle Amendment Act refers to amendments that have caused concern around the country due to the new hike in fines that it has introduced. However, while the concept seems unusual, there is a counter argument which says that these high loan fees enable low-level authorities to get involved in corruption. One of the points brought to light by the concerned individuals was their dissatisfaction with the new punishments system, arguing how these may enable the enforcement agencies to take unscrupulous advantage of them.
10. A few technical issues to be dealt with:
 - Installation of digital devices
 - Strict inspections of vehicle standards (new and old both)
 - Regular follow up of road constructions and road conditions
 - Well-defined and regularly updated road map for smooth GPS operation
 - Comprehensive measures for traffic control
11. Will the imposition of excess of fine curtail the corruption in the imposition and collection of the same – this is the question that authorities need to take into consideration.

Conclusion

The data compared clearly show the noticeable reduction in the number of accidents, deaths, and injuries on roads after the implementation of the Motor Vehicles Amendment Act of 2019. Due to heavy fines and strict automated monitoring, road users use helmets, seatbelts more often, abide by speed limits, and follow the no-drink-and-drive rules. This is an early sign of the success of this new law. At the point when the administration has increased the fine 5–10 times, the risk likewise falls on the legislature to keep up the standard of the roads. The Act has also laid the foundation for the National Road Safety Board to be set up to support the legislature in different areas of safety of roads. So, the inquiry will likewise be raised on its viability as it has just warned forces. Be that as it may, if we take look at a portion of the valid statements in the Act, the execution of new segment of the Good Samaritan Law is really a decent advance. As there is sufficient security for Good Samaritans, more individuals will come out to help the casualty as they won't be at risk of formalities of inquiry while helping them go after clinical help. Additionally, the robust punishments make individuals refrain from violating the traffic rules. The individuals will turn out to be additionally careful with regards to adhering to the traffic rules and it will in the end lead towards a better 'traffic well-being' of everyone.

The analysis also reveals that road accidents are a result of an interplay of a few factors, which include e.g. the length of road, number of vehicles on the road, human population, and adherence/requirement of road-safety guidelines. The analysis shows that the decreased number of road accidents by 3.86%, deaths by 0.20%, and injuries by 3.86% in the country during the year 2019–2020 as per the MORTH report 2020–2021 is indicative of a positive result of the enforcement of The Motor Vehicles Amendment Act of 2019. Our findings support policy recommendations that advocate for enhanced road safety, stricter measures against traffic violations, and an increasing number of safety-enabled vehicles, as these innovations can help reduce the financial impact associated with road accidents.

References

- Arora P., Chanana A., Tejpal H.R., *Estimation of blood alcohol concentration in deaths due to roadside accidents*, "Journal of Forensic and Legal Medicine" 2013, 20(4), 300–304. doi: 10.1016/j.jflm.2013.01.019.
- Bhandari R., Raman B., Padmanabhan V., *Poster: Improving road safety through smart-sensing*. Proceedings of the 14th ACM Conference on Embedded Network Sensor Systems, 2016, 36–37. doi: 10.1145/2994551.2996625.

- Chandrasekharan A., Nanavati A.J., Prabhakar S., *Factors impacting mortality in the pre-hospital period after road traffic accidents in urban India*, "Trauma Monthly" 2016, 21(3). doi: 10.5812/traumamon.37677.
- Choudhary A.A., *SC expedites grant of compensation in road accident cases*, "The Times of India" 2021, March 17. Available from: <https://timesofindia.indiatimes.com/india/sc-expedites-grant-of-compensation-in-road-accident-cases/articleshow/81541433.cms> (access: 15.07.2022).
- Dandona R., Kumar G.A., Gururaj G. et al., *Mortality due to road injuries in the states of India: The Global Burden of Disease Study 1990–2017*, "The Lancet Public Health" 2020, 5(2), e86–e98. doi: 10.1016/S2468-2667(19)30246-4.
- Das H., Gjerde H., Gopalan S.S., Normann P.T., *Alcohol, drugs, and road traffic crashes in India: A systematic review*, "Traffic Injury Prevention" 2012, 13(6), 544–553. doi: 10.1080/15389588.2012.663518.
- Das S., Gireesh C.P., *Motor Vehicles Bill, 2019: Government seeks to put India on a safer road*, "Live Mint", 2019, August 1. Available from: <https://www.livemint.com/politics/policy/motor-vehicles-bill-2019-govt-seeks-to-put-india-on-a-safer-road-1564692285376.html> (access: 11.12.2019).
- Guide to Motor Vehicles Act 1988 – As Amended by Motor Vehicles Amendment Act 2019*, September 2019 edition, Taxmann Publication 2019.
- Hsiao M., Malhotra A., Thakur J.S., Sheth J.K., Nathens A.B., Dhingra N., Jha P., *Road traffic injury mortality and its mechanisms in India: nationally representative mortality survey of 1.1 million homes*, "BMJ Open" 2013, 3(8), pp. 1–9. <https://doi.org/10.1136/bmjopen-2013-002621>
- Investopedia, CAGR: Compound annual growth rate, 2021. Available from: <https://www.investopedia.com/terms/c/cagr.asp#:~:text=Formula%20and%20Calculation%20of%20CAGR,-C%20A%20G&text=To%20calculate%20the%20CAGR%20of,one%20from%20the%20subsequent%20result> (access: 01.05.2021).
- Ministry of Law and Justice, *The Motor Vehicles (Amendment) Act. India*, 2019, <http://egazette.nic.in/WriteReadData/2019/210413.pdf> (access:14.03.2022).
- Ministry of Road Transport and Highways, *Road accidents in India – 2018*, New Delhi 2019.
- Motor Vehicles Act 1988 – as amended by Motor Vehicles (Amendment) Act 2019*, Sharda Book House 2019.
- O' Neill B., Role of advocacy, education, and training in reducing motor vehicle crash losses. *Proceedings from WHO meeting to develop a 5-year strategy on road traffic injury prevention* (pp. 1–12), Geneva 2001.
- Pal R., Ghosh A., Kumar R. et al., *Public health crisis of road traffic accidents in India: Risk factor assessment and recommendations on prevention on the behalf of the Academy of Family Physicians of India*, "Journal of Family Medicine and Primary Care" 2019, 8, 775–783. doi: 10.4103/jfmpc.jfmpc_228_19.

"Panel wants Body Cams on Traffic Cops", *RTO Officials*, "Economic Times" 23.12.2017, <https://economictimes.indiatimes.com/news/politics-and-nation/panel-wants-body-cams-on-traffic-cops-rto-officials/articleshow/62219376.cms> (access: 07.01.2022).

Rivan R.S. *Motor Vehicle (Amendment) Act 2019 comes into Force*, "Autocar" 2019. Available from: <https://www.autocarindia.com/car-news/motor-vehicles-amendment-act-2019-comes-into-force-413978> (access: 2.05.2021).

Transport Research Wing, *Road accidents in India – 2018*, New Delhi: Ministry of Road Transport & Highways, Government of India 2019.

World Health Organization, *Road traffic injuries*, 2021. Available from: <https://www.who.int/news-room/fact-sheets/detail/road-traffic-injuries>. (access: 1.05.2021).