



IMPACT OF GOVERNMENT INITIATIVES ON MANAGEMENT OF ROAD SAFETY ON NATIONAL HIGHWAYS

Dr. T. Srinivas* Dr. V. Tulasi Das**

*Research Scholar, Dept. of HRM, Acharya Nagarjuna University, Guntur, A.P.

**Associate Professor, Head, Dept. of HRM, Acharya Nagarjuna University, Guntur, A.P.

Abstract

Studies show that motor vehicle crashes have a disproportionate impact on the poor and vulnerable group in the society. Poorer people comprise the majority of casualties and lack ongoing support in the event of long-term injury. Data on the incidence and types of crashes as well as a detailed understanding of the circumstances that lead to crashes is required to guide safety policy. Knowledge of how injuries are caused and of what type they are is a valuable instrument for identifying interventions and monitoring the effectiveness of interventions. However, in many low-income and middle-income countries, systematic efforts to collect road traffic data are not well developed and underreporting of deaths and serious injuries is common. The related sectors have an important role to play in establishing data systems on injuries and the effectiveness of interventions, and the communication of these data to a wider audience. In this context the present research focuses on impact of government initiatives on road safety management.

Introduction

In India a total of 4,64,910 road accidents have been reported by all the States and Union Territories (UTs) in the calendar year 2017, claiming 1,47,913 lives and causing injuries to 4,70,975 persons. In terms of accidents on road categories, the National Highways accounted for 30.4 per cent of total road accidents and 36.0 per cent of deaths in 2017. Accidents on State Highways and other roads constitute 25 per cent and 44.6 per cent respectively. In case of fatality, State Highways and other roads have accounted for 26.9 per cent and 37.1 per cent, respectively. Among vehicle categories involved in road accidents, two-wheelers accounted for the highest share (33.9%) in total accidents and fatalities (29.8%) in 2017. Light vehicles comprising cars, jeeps and taxis as a category comes a distant second with a share of 24.5 per cent in total accidents and 21.1 per cent in total fatalities. For safer mobility that aims at reducing crash risks, a scientifically-based Road Safety Management approach is required. This approach requires a clear understanding based on multidisciplinary research that unravels the complexities of traffic environment. Road Safety Management needs to be systematic and scientific, based on a critical understanding of barriers and challenges.

Road safety - A Traditional view

The traditional view in road safety has been that road crashes are usually the sole responsibility of individual road users despite the fact that many other factors beyond their control may have come into play, such as the poor design of roads or vehicles. But human error does not always lead to disastrous consequences. Human behavior is governed not only by the individual's knowledge and skills, but also by the environment in which the behavior takes place. Indirect influences, such as the design and lay-out of the road, the nature of the vehicle, and traffic laws and their enforcement affect behavior in important ways.

Road safety - A Modern view

Vision Zero Concept of Sweden introduces a new paradigm shift for road safety where in safety cannot be traded for mobility. Road users should not have to risk facing death every time they enter the road transport system. However, Vision Zero also does not solely promote the lowering of speed limits. Instead, Vision Zero demonstrates how mobility and safety can be jointly promoted if design principles are properly applied. By applying the appropriate tools, road users can arrive at their destinations in a timely manner without getting hurt. Vision Zero also emphasizes the importance of shared responsibility. No longer is the individual fully responsible for road safety, but system designers should also be held accountable. This radical new perspective allows for the construction of a more integrated road system that is built around tolerating human error. It is important to note, though, that individual road users are still partly responsible for safety under Vision Zero. While system designers



have the ability to solve design and infrastructure-related problems, road users must adhere to the regulations set by system designers in order for the road transport system to actually become safer.

Road safety - A shared Responsibility

Road safety is a shared responsibility at international, national, regional, and local levels. It involves government, civil society and businesses. Achieving road safety results is a multi-disciplinary activity and requires the good and best practice input of a wide range of jurisdictions, public and private sector agencies and organisations. This substantial scope and related challenge require meaningful institutional leadership, collaboration and capacity within Government and engagement with key partners in the business sector and civil society to achieve the respective country goals.

Review of Literature

Katharina Wiedemann et.al (2018) in their article entitled “Effect of different alcohol levels on take-over performance in conditionally automated driving” studied the influence of different BAC-levels on drivers’ ability to take back manual control when a conditionally auto mated vehicle reaches its limits. Vehicle automation is a promising solution to many problems associated with modern day traffic. Safety concerns have been expressed whether drivers will be able to re-engage safely in the driving task because of their relief from continuous operation of the vehicle. Over reliance on the capability of automated driving systems, could, however, promote misuse and a more incautious attitude towards driving under the influence of alcohol, which could further complicate taking back control from automated vehicles.

Alcohol is known to impair various aspects of cognitive functioning relevant to safely controlling a vehicle. One special interest of the study was the combined effect of alcohol level and automation use on the sleepiness of the participants. At low alcohol doses and while BAC is ascending, alcohol’s stimulating effects usually prevail, while at low alcohol doses and while BAC is descending, it has predominantly sedating effects on the other hand, the use of automated driving systems itself has been shown to increase sleepiness and it has been shown that negative effects of alcohol on driving performance are worsened by sleep deprivation. The study assessed alcohol-induced impairments of take over performance during conditionally automated driving, demonstrating a significant worsening of both take over time and quality at a BAC-level of 0.08%. For 0.05% BAC, there was only a descriptive trend of worsening compared with the alcohol placebo condition. These results demonstrate that the risks associated with alcohol consumption will not disappear as a result of vehicle automation and that efforts have to be undertaken that this risk is not underestimated.

Jonathan J. Robison et.al (2018) in their article entitled on “What are the factors that contribute to Road Accidents - An assessment of law enforcement views, ordinary drivers’ opinion, and road accident records” analyse the causes of road accidents involving young, middle age, and older male and female drivers reported in accident records. Drugs or alcohol and excessive speed were frequently generated for the young driver accident scenarios. Risk taking is viewed as an important contributing factor for this age group. Inexperience and driver distraction were also generated frequently for both young driver scenarios and actual collisions. Close to half of the instances of distraction were reported to be of mobile phone use. Mobile phone use reduced steeply in number with driver age in the road accident records. Failure to look properly, loss of control, and failure to judge another person’s path or speed were the most frequently reported factors in the road accident records.

Report on Drug Use and Road Safety (2018) point out that Psycho-active substance use affects the functioning of the brain and leads to impaired driving. There is growing concern around the world about drug use and road safety. Psychoactive drugs affect the functioning of the brain and may lead to impaired driving (e.g. by delaying reaction time and information processing, reducing perceptual- motor coordination and motor performance. The report suggested the prevention and early intervention measures which include five essential areas (1) Establishing drug-driving laws and regulations (2) Testing for drug use (3) Enforcing drug-driving laws (4) raising awareness of drug-driving (5) Counselling and treatment.



Strengthening Road Safety Regulations (2013) bring out the road safety regulations that contribute to reduction of fatalities which are (i) Lowering speed limits to reduce the risks for crashes and fatalities and also the severity of injuries and the number of fatalities (ii) Implementing laws on drink-driving should set the threshold blood alcohol concentration at 0.02 gm/dl for young or novice drivers and at 0.05gm/dl for the general population (iii) Enforcement and other regulatory mechanisms regarding use of motor cycle helmets (iv) Enforcement on use of seat-belts (v) Implementation of National Laws on Child restraint.

Public Attitudes to Road Safety in New Zealand, (2013) presents the results of the survey under the following headings: (a) General attitudes to road safety and enforcement, (b) Alcohol-impaired driving, (c) Drink driving enforcement, (d) Speed and speed enforcement, (e) Speed cameras, (f) General enforcement and compliance, (g) Safety belts and children restraints, (h) Rooding and (i) Fatigue and distraction. The results are: (1) Speed and alcohol are widely acknowledged as major road safety problems. The majority of New Zealanders recognize that drink-driving and speeding increase the chance of an accident. One in ten people thought that the risk of an accident when drink-driving was small, and one in six thought the risk of an accident when speeding was small, as long as one is careful. (2) Public support for alcohol, speed and seatbelt enforcement continues to be high. 93% of the New Zealand adults said they would like police efforts to enforce road safety laws increased (40%) or maintained at the current level (53%). (3) Three-quarters of the New Zealanders said that compulsory breath testing (CBT) (77%) and speed enforcement (76%) help to lower the road toll.

Support for seatbelt enforcement was even higher, with 89% agreeing that seatbelt enforcement helps lower the road toll. (4) Over the last year, there has been no significant change in public perceptions of the risk of being caught drink-driving, speeding or failing to wear a seatbelt. (5) When asked how fair or unfair it would be for alcohol offenders to be required to pay for and use an alcohol interlock in order to drive, 89% said it was fair. (6) When asked about the effectiveness of roadside speed indicator devices at slowing the respondents down, 86% said they were very or quite effective. (7) When asked about the likelihood of getting caught using a hand-held cell phone or texting while driving, 27% said it was fairly or very likely, while 47% said it was fairly or very unlikely and (8) Restraint use by children aged 5 to 6 and 7 to 9 years. For children aged 5 to 6 years, 81% were restrained in a child restraint or booster seat compared to 27% for children aged 7-9 years.

Report on Community Attitudes to Road Safety in Australia (2013) present that the Australian community continues to identify speed as the factor which most often leads to road crashes. When asked to nominate the factor that most often leads to road crashes, 31% mention speed, 18% inattention/lack of concentration, 11% drink driving, 8% driver distraction/driving while on a mobile and 7% driver fatigue. When asked to nominate up to three factors that lead to road crashes, 48% of respondents included speed in their response (compared with 54% in 2011), 42% drink driving (47% in 2011), 29% inattention/lack of concentration (26% in 2011), 22% driver distraction/driving while on a mobile (14% in 2011), and 22% driver fatigue (22% in 2011).

Wilson, ET. Al, (2006) in their article entitled “Speed Enforcement detection devices for preventing Road Traffic Injuries” studied the effectiveness of Speed Enforcement Devices (SEDs) in reducing road traffic accidents the authors examined all studies that compared are as before and after introduction of SEDs and their effect on road traffic crashes and injuries. Out of the review which included 26 studies, 21 measured the effect on crashes. All these studies found that the areas where SEDs were introduced, there was a reduction in the number of crashes. The reductions ranged from 14% to 72% for all crashes in areas where SEDs were introduced, 8% to 46% for injury crashes, and 40% to 45% for crashes resulting in-fatalities or serious injuries. Effects over wider areas showed a crash reduction ranging from 9% to 35%, 7% to 30% for all injury crashes and 13% to 58% for crashes resulting in-fatalities or serious injuries.

Rao, B. S. et al., (2005) in the article entitled “Accident Study on National Highway No.16 between Anakapalli and Visakhapatnam” found that the most frequent accident involved two wheelers (35%) followed by goods vehicles (23%), cars (17%), autos (15%), Buses (9%) and unknown vehicles (1%). The reasons for the accidents can be attributed to the lack of signage, raised median cover with trees/bushes, making pedestrians not visible to driver, improper design of pedestrian crossing, frequent median openings, and lack of enforcement to control



wrong side movements. Poorly designed access roads from the adjacent areas of the highway are also leading to frequent conflicts between local traffic (mostly two wheelers) and through traffic (goods vehicles). It was suggested that proper sign boards such as Informatory, warning and caution sign should be placed to guide the road user to perceive the situation. Other suggested measures were closing the unauthorized median openings, improved junction geometrics and improved illumination during night.

Drinking and Driving in Europe (2003) made certain recommendations with an aim to achieve a target of halving the deaths and disability adjusted life years due to drinking and driving between 2000 and 2010, which are 1) A maximum blood alcohol concentration limit of 0.5 g/L (and breath equivalent) should be introduced throughout Europe with immediate effect; a lower limit of 0.2 g/L should be introduced for novice drivers and drivers of public service and heavy goods vehicles, with immediate effect. 2) By the year 2010, the maximum blood alcohol concentration limit should be reduced to 0.2g/L for all drivers. 3) Unrestricted powers to breath test, using breathalysers of equivalent and agreed standard, should be implemented throughout Europe 4) Common penalties for drinking and driving, with clarity and swiftness of punishment, need to be introduced throughout Europe. 5. Driver education, rehabilitation and treatment schemes, linked to penalties, including the return of suspended licenses, need to be strengthened and implemented throughout Europe for drinking and driving offenders. 6. Because of limited evidence for their effectiveness in reducing drinking and driving, public education efforts to persuade drinkers not to drive after drinking 7.

Although the beverage alcohol industry has a responsibility in reducing drinking and driving, drink driving laws and regulations and public education campaigns should be set and implemented throughout Europe independent of the beverage alcohol industry. 8. Lowered blood alcohol concentration limits, the introduction of unrestricted powers to breath test and the introduction of common penalties, such as automatic license suspension when over a limit of 0.5 g/l should be supported by major publicity campaigns to inform the drivers of Europe of the new measures. 9. A monitoring system, with common and standardized measures across European countries, should be put in place to produce annual reports on drinking and driving in Europe.

Objectives of the study

1. To examine the impact of Road safety initiatives by Government on Road Safety Management in the stretch of Vijayawada to Tada on National Highway No: 16 (435K.M)
2. To put forth certain suggestions based on the findings that have been arrived.

Research Methodology

Source of Data

To fulfil the aforesaid objectives the data have been collected from two sources i.e. primary and secondary sources. The secondary data were collected from various journals, periodicals, magazines, books and unpublished documents. The primary data were collected directly from the sample respondents with pre - designed and tested questionnaire.

Sampling and Data Collection

Convenience sampling method was used to select the sample. Questionnaire is designed duly considering different Road users' responsibilities, which play a key role in Road Safety Management on National Highways. The questionnaire is distributed personally to the Road Users and they were requested to provide required information. 2500 Road Users are selected for this study using the convenience sampling technique and emphasis being given, so that as many Road Users of various demographical factors can be acquired. The participants were solicited to complete the Road Safety Management Survey Questionnaire. Out of the total respondents 2340 completed the schedule sheets and returned it back.



Data Analysis

Table-1: Descriptive Statistics on The Breath Alcohol Concentration Limits & Breath Testing Enforcement Impacting The Road Safety Management on National Highways

	N	Mean	Rank	Std. Deviation	Std. Error Mean
Legal Blood Alcohol limits are not known to many of the Road users	2340	3.38	10	1.213	.025
Legal BAC limit should be reduced to bring down the accidents	2340	3.84	9	1.177	.024
BAC testing is very rare on National Highway	2340	3.02	11	1.463	.030
Compulsory Breath testing helps lowering the Road Accidents toll	2340	3.87	8	1.083	.022
Breath testing tests should be increased on Road Users speeding at Night	2340	4.07	4	.969	.020
Breath testing of road users involved in an accident shall be made compulsory	2340	4.07	4	1.046	.022
Breath testing check points should be increased on National Highways	2340	4.28	1	1.012	.021
Breath testing should be carried out especially on Truck Drivers	2340	3.93	7	1.145	.024
Breath testing should be carried out especially on Two-wheeler drivers	2340	4.11	3	1.032	.021
Breath testing should be carried out especially on Four-wheeler drivers	2340	4.23	2	1.002	.021
Breath testing is to be increased during night between 9PM to 6AM	2340	3.98	6	1.063	.022

(Source: Primary Data/ Structured Questionnaire)

1. Breath testing check points should be increased on National Highways (mean=4.28) ranked in 1st place. The respondents are of the view that for effective Road Safety Management Breath testing check points should be increased on National Highways and thus considered to be important in the study area.
2. Breath testing should be carried out especially on Four-wheeler drivers occupied second rank (mean=4.23).
3. BAC testing is very rare on National Highway is ranked in last position (mean=3.02).

Table-2: Descriptive Statistics on Setting Up of Speed Limits, Installation of Speed Cameras & Speed Governors Impacting The Road Safety Management on National Highways

	N	Mean	Rank	Std. Deviation	Std. Error Mean
Urban speed limit should be imposed at 50km / hour	2340	3.79	9	1.103	.023
Speed limits in and around 3kms of schools shall be 30km / hour or less	2340	4.05	5	1.036	.021
Speed limits at Junctions shall be 40km/hour	2340	3.83	8	1.066	.022
Installation of Speed-Governors on vehicles tend to reduce the accidents	2340	4.13	4	1.097	.023
Automatic loss of license is to be imposed for repeated offenders	2340	3.68	10	1.249	.026
Installation of Road Side Speed indicators are very effective	2340	4.04	6	1.192	.025



Installation of Speed surveillance cameras helps to lower the toll of road accidents	2340	4.41	1	1.015	.021
Installation of speed cameras shall be for every 50km	2340	4.20	3	1.063	.022
Severe penalties should be imposed on those exceeding speed limits	2340	4.30	2	1.147	.024
Speed Governors are to be installed on all Public Transport vehicles with an upper limit of 80km/hour	2340	4.04	6	1.295	.027

(Source: Primary Data/ Structured Questionnaire)

1. Installation of Speed surveillance cameras helps to lower the toll of road accidents (mean=4.41) ranked in 1st place. The respondents are of the view that for effective Road Safety Management, Installation of Speed cameras helps lowering the road accident toll and found to be important in the study area.
2. Severe penalties should be imposed on those exceeding speed limits occupied second rank (mean=4.30).
3. Automatic loss of license is to be imposed for repeated offenders is ranked in last position (mean=3.68).

Table-3: Descriptive Statistics on Road user Fatigue & Provision of Rest Areas impacting the Road Safety Management on National Highways.

	N	Mean	Rank	Std. Deviation	Std. Error Mean
Driving when tired increases the chance of Accidents	2340	3.96	4	1.135	.023
Driving in-spite of being tired is to reach home early	2340	3.83	5	1.151	.024
Driving in-spite of being tired is due to pressure from the owner to reach the unloading destination fast	2340	4.01	3	1.111	.023
Driving in-spite of being tired is due to absence of 2nd driver	2340	4.09	2	1.159	.024
Rest Areas at every 50km will reduce fatigue and avoid accidents	2340	4.49	1	1.013	.021

(Source: Primary Data/ Structured Questionnaire).

1. Rest Areas at every 50kms will reduce fatigue and avoid accidents (mean=4.49) ranked in 1st place. The respondents are of the view that for effective Road safety management, providing Rest Areas at every 50km on National Highways will reduce fatigue and avoid accidents is found to be important in the study area.
2. Driving in-spite of being tired is due to absence of 2nd driver occupied second rank (mean=4.09).
3. Driving in-spite of being tired is to reach home early is ranked in last position (mean=3.83).



Table-4: Descriptive Statistics on Provision of the Signages / Road Marking / Transverse bar marking / Reflective Road Studs impacting the Road Safety Management on National Highways

	N	Mean	Rank	Std. Deviation	Std. Error Mean
Meaning of sign boards are not known to many road users	2340	4.14	2	1.038	.021
Drivers' refresher course on understanding signages is very much required	2340	4.08	4	1.073	.022
More number of sign boards are required on National Highways	2340	3.91	8	1.103	.023
Proper understanding the signages reduces the chances of accidents	2340	4.04	5	1.011	.021
Reflective Road markings increases the safety of the Road users	2340	4.32	1	.995	.021
Transverse bar marking is to be provided at all important locations	2340	4.04	5	1.064	.022
Providing Transverse bar marking alerts the driver	2340	4.03	7	1.049	.022
Reflective Road studs alerts the road users especially at junctions	2340	4.14	2	1.011	.021

(Source: Primary Data/ Structured Questionnaire)

1. Reflective Road markings increases the safety of the road users (mean=4.32) ranked in 1st place. The respondents are of the view that for effective Road safety management, providing Road markings increases the safety of the Road users is found to be important in the study area.
2. Reflective Road studs alerts the road users especially at junctions occupied second rank (mean=4.14).
3. More number of sign boards are required on National Highways is ranked in last position (mean=3.91).

Table-5: Descriptive Statistics on Provision of Central Median / Median Plantation/ Shoulders/ Lighting / Delineators impacting the Road Safety Management on National Highways

	N	Mean	Rank	Std. Deviation	Std. Error Mean
Presence of Central Median, Median kerb reduces chances of accidents	2340	4.10	8	1.047	.022
Properly maintained earthen shoulders improves the safety of road users	2340	3.85	10	1.057	.022
Drivers should not go beyond the shy-line of the median kerb to avoid accidents	2340	4.05	9	1.018	.021
Dense Median plantation is required to avoid accidents from the glare of opposite vehicles	2340	4.33	2	.873	.018
Provision of Solar blinkers at median openings tends to reduce the chance of accidents	2340	4.24	5	.885	.018
Provision of Waiting lines at the median opening reduce the chance of accidents	2340	4.20	7	.874	.018
Unauthorized median openings lead to increase in accidents	2340	4.37	1	.842	.017
Lighting along the highway in urban area & at junctions improves safety	2340	4.25	4	.933	.019



Visibility of Median kerb painting at night time contributes to safety	2340	4.28	3	.933	.019
Delineators guide the road users especially at curves	2340	4.22	6	1.064	.022

(Source: Primary Data/ Structured Questionnaire)

1. Unauthorized median openings lead to increase in accidents (mean=4.37) ranked in 1st place. The respondents are of the view that presence of unauthorized median openings lead to increase in accidents is found to be important in the study area.
2. Dense Median plantation is required to avoid accidents from the glare of opposite vehicles occupied second rank (mean=4.33).
3. Properly maintained earthen shoulders improves the safety of road users is ranked in last position (mean=3.85).

Table-6: Descriptive Statistics on Provision of Service Roads impacting the Road Safety Management on National Highways

	N	Mean	Rank	Std. Deviation	Std. Error Mean
Provision of Service roads throughout the length of National Highways shall reduce the accidents	2340	4.39	1	.944	.020
Parking along the service roads should be avoided	2340	4.24	3	.992	.020
Access from off-take roads directly to the National Highways is dangerous	2340	4.13	5	.980	.020
Access from off-take roads is to be provided to the Service roads only	2340	4.24	3	.991	.020
Occupation by vendors along service road increases accidents	2340	4.38	2	1.002	.021

(Source: Primary Data/ Structured Questionnaire)

1. Provision of Service roads throughout the length of National Highways shall reduce the accidents (mean=4.39) ranked in 1st place. The respondents are of the view that for effective Road safety management provision of Service roads throughout the length of National Highways shall reduce the accidents is found to be important in the study area.
2. Occupation by vendors along service road increases accidents occupied second rank (mean=4.38).
3. Access from off-take roads directly to the National Highways is dangerous is ranked in last position (mean=4.13).



Findings

Based on the perceptions of the respondents in the study area on various Road Safety aspects contributing for effective Road Safety Management, the salient findings are summarised as follows:

1. Breath testing check points should be increased on National Highways is found to be highly significant (**Descriptive statistics in Table 1**) for Road Safety Management in study area.
2. Installation of Speed cameras helps to lower the road accident toll is found to be highly significant (**Descriptive statistics in Table 2**) for Road Safety Management in study area.
3. Provision of Rest Areas at every 50km will reduce fatigue and avoid accidents is found to be highly significant (**Descriptive statistics in Table 3**) for Road Safety Management in study area.
4. Provision of Reflective Road markings increases the safety of the road users is found to be highly significant (**Descriptive statistics in Table 4**) for Road Safety Management in study area.
5. Unauthorized median openings lead to increase in accidents is found to be highly significant (**Descriptive statistics in Table 5**) for Road Safety Management in study area.
6. Provision of Service roads throughout the length of National Highways shall reduce the accidents is found to be highly significant (**Descriptive statistics in Table 6**) for Road Safety Management in study area.

Suggestions

Based on the perception of the Road users, the following Road Safety counter measures /initiatives to be taken up on priority by Government in the study area to reduce the accident rate are suggested for achieving effective Road Safety Management.

1. Installation of Speed surveillance cameras on the National Highways and imposition of severe monetary penalties on the road users who exceed speed limits will improve self-control on driving and contribute to reduction of accidents, fatalities and injuries.
2. Increase of Breath Alcohol Concentration testing check points on the National Highway enhances the Road Safety mechanism and reduces the toll of accidents, fatalities and injuries due to drunk & driving.
3. Road users especially Truck drivers, travel for long distances and for long hours because of which they are subjected to fatigue, which sometimes leads to accidents. Provision of Rest Areas at every 50km on the National Highways will enable them to take rest, reduce their travelling fatigue and consequently avoid accidents.
4. During night driving, conspicuity of objects along the National Highway is very much important. Properly visible & reflective road markings enhance the vision and ease of driving of the road users and contribute to reduction of accidents.
5. From the data of road accidents, 50% of the accidents on National Highway occur at junctions / median openings. Unauthorized median openings do not have proper signages and shall become vulnerable points for occurrence of accidents. Stringent action to be taken by the authorities to curb the practice of opening un-authorized medians.
6. Vulnerable road users i.e., two wheelers & three wheelers account for 35% to 40% of the total road accidents, as they merge with the fast moving National Highway traffic due to absence of service roads. Provision of service roads throughout the length of National Highways will reduce the 2- wheeler and 3- wheeler accidents.

Conclusion

In the present study, a total of 6 factors which impact the Road Safety Management on National Highways are considered. (i) Installation of Speed surveillance cameras and imposition of severe monetary penalties on the road users (ii) Increase of Breath Alcohol Concentration testing check points (iii) Provision of Rest Areas at every 50km (iv) Provision of properly visible & reflective road markings (v) Closing of Unauthorized median openings (vi) Provision of service roads throughout the length of the Highway will result in reduction of accidents, fatalities, injuries and contribute to more effective Road Safety Management.



References

1. Drinking and Driving in Europe (2003) published by Euro Care, European Union, Europe.
2. Jonathan J. Rolison, et.al (2018), “What are the factors that contribute to Road Accidents - An assessment of law enforcement views, ordinary drivers’ opinion, and road accident records”. Elsevier Journal, Vol.115, Pages no.11-24.
3. Katharina Wiedemann, et.al (2018), “Effect of different alcohol levels on take-over performance in conditionally automated driving”. Elsevier Journal, Vol.115, Pages no.89-97.
4. Public Attitudes to Road Safety in New Zealand (2013) published by Ministry of Transport, New Zealand
5. Rao B.S., et.al (2005), “Accident Study on National Highway no.16 between Anapakalli and Visakhapatnam” cited in Road Safety in India – Status Report TRIPP, IIT, and New Delhi.
6. Report on Community Attitudes to Road Safety in Australia (2013) published by Department of Infrastructure and Regional Development, Australia Government.
7. Report on Drug Use and Road Safety (2018) published by World Health Organization.
8. Strengthening Road Safety Regulations (2013) published by World Health Organization.
9. Wilson, et.al (2006), “Speed Enforcement detection devices for preventing Road Traffic Injuries” retrieved from www.cochranelibrary.com.