

## SHORT ARTICLE

## Risky driving behaviour among the motorized two-wheeler novice riders in Davanagere city, Karnataka- Cross-sectional study

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### Abstract

**Introduction**-Road traffic accidents (RTA) account for more significant mortality and morbidity rates worldwide, resulting in considerable global burden. In Indi, motor vehicle accidents are one of the common reasons for mortality among young riders. The present study provides insight into different aspects of risky driving behavior from individual attitudes, and psychological factors like anger, mood, and emotions. **Methodology**- A cross-sectional study was conducted among college students; findings from this study say young males are more involved in risky driving behavior. **Results**- Number of males are involved in risky driving behaviour and mobile phone usage while riding is more significant the results focus on the role that risky driving behaviour plays in two-wheeler motor vehicle accidents and suggests the need for further research in this area of risky driving behaviour to improve road safety education and law enforcement policies that focus upon ensuring good driving behaviours.

### Keywords

Davanagere; Novice; Riding behavior; Younger riders

### Introduction

Road Traffic Accidents (RTAs) are a significant cause of death and injury and an increasing public health problem globally, causing more than 1.2 million deaths annually(1). In India, the motor vehicle population is growing at a faster rate with a growing number of fatal crashes it is due to "Human factors," "Vehicle factors," and "environmental factors" (2). The physical characteristics of the vehicle, coupled with unsafe behavioral factors of the rider, expose the two wheeler to high risks.

RTAs are most commonly affect the economically productive age group and are the leading cause of death among young people aged between 15 and 29 years(3). According to the World Health Organization (WHO), RTAs are the sixth leading cause of death in India with a more significant share of hospitalization, deaths, disabilities and socio-economic losses in the young and middle-aged population(2). Young riders are at an increased risk of road traffic crashes and the reasons for the higher rate of road

traffic crashes amongst young riders are due to minimal information about road safety, not being aware of the dangers on the road, limited practice, and inexperience particularly in the necessary, safe driving. Apart from these, young riders are having risk-taking behavior like negligent driving, speeding, and mobile phone usage. There is a probable gap which remains to be addressed to change the behaviour of motor vehicle riders. The current study has investigated the risky driving behaviours like speeding, non-usage of helmet, mobile phone usage, anger, not following traffic rules which is present among the young motorized two-wheeler riders of Davanagere city and the findings of the study can be taken up by local authorities (RTO, Traffic police) to design behaviour specific intervention programs.

Evidence from various national reports (NCRB, SRS, MCCD) as well as few independent studies indicate that RTAs and fatalities are five times higher in males (82-86%) compared to females, due to greater exposure to unsafe

traffic environments as well as due to their more significant risk-taking behaviours.

As per the Ministry of Road Transport and Highways (MoRTH) for the year, 2016 shows 1, 50,785 people were killed and another 4, 94,624 were injured in 4, 80,652 road crashes in India. The numbers of road crash deaths have increased by 31% from 2007 to 2017, and fatal road crashes have increased by 25.6% during the same period(3).

Davanagere is the sixth-largest city in Karnataka, and it is being recognized as a knowledge city because the city is home to the headquarter of Davanagere University and several educational institutes. Increased density of traffic especially at peak hours, faulty roads and traffic signals, poor maintenance of vehicles and other contributory factors leading to motor vehicle accidents are speeding, mobile phone usage, consumption of alcohol and other drugs, including physiological condition such as fatigue, depression, stress and immaturity among youths. In 2014 Davanagere was ranked second highest in Karnataka on the list of traffic violations, and it had recorded 34,739 cases(4).

### Aims & Objectives

1. To understand risky driving behavior among motorized two-wheeler riders.
2. To suggest preventive measures to reduce risky driving behavior among motorized two wheeler riders.

### Material & Methods

A cross-sectional study was conducted among college students in Davanagere city, Karnataka between the age group of 18years to 25 years who are holding learner's license and permanent driving license from two years in Davanagere city. A sample size of 150 was calculated by considering the proportion of the event in the population ( $P=50\%$ ), value at a specified level of confidence ( $Z=95\%$ ), the proportion of population risky driving behaviour among novice rider was estimated as 50 %, the confidence level was estimated at 1.96. The desired precision of 8% was taken, considering the response rate as 8%. Colleges were selected based on administrative permission. Colleges and classes were selected through purposive sampling method, and then students from all classes were invited to participate in the survey, study purpose, and their role in the study was explained. Students were enrolled after written informed consent, and closed-ended structured questionnaire was administered to collect quantitative data, participants were questioned about their involvement in risky driving behaviours over the period from age 18-25 years, using a rider behaviour questionnaire. A total of 150 forms were distributed and collected in all six colleges. Data was entered and analyzed in excel and SPSS version 16. Association among gender and age between various domains of risky driving behaviour was done by using chi-square statistical analysis

test. Ethics Committee: KMC & KH Institutional Ethics Committee IEC No. – 903/2017

### Results

A study was conducted in Davanagere city among college students, of the 150 participants 106(70.67%) and 44(29.33 %) males and females, respectively and 125(83.33%) were belong to 18-20years of age, 25(16.67%) belonged to 21 and above age. Of 150 participants, 26(17.33%), 11(7.33%) ride fast and aggressive, respectively.([Table 1](#))

In ([Table 2](#)), we look into various domains under risky driving behaviour. 75.3% of students drive fast when they get late to college or any work, 52% of participants crossed city speed limit, 35.3% of participants raced when lights went green in the traffic signal, and 33.3% of participants overtook vehicle from left side, 118(78.67%) get angry when delayed to work/college due to the traffic jam. This shows that risky driving behavior is most common among novice riders. Among 150 participants, 18(14.4%) aged between 18-20 years have never used a helmet while riding a two-wheeler. Based on these results, participants in the age group of 18-20 years are shown to nonuse of helmet. Then this study confidentially says that age was associated with helmet use. After performing a Chi-Square test among these variables, it shows significance with a p-value of 0.044. Of 150 participants, 11(25.6%) of females and 67(62.6%) of males have crossed the city speed limit. Based on these results, males are shown to the crosscity speed limit. Then this study confidentially says that gender is associated with speeding. After performing a Chi-Square test among these variables, it shows significance with a p-value of 0.001. Among 150 participants, 18(16.8%) of males and 0(0%) of females sent or read a text in mobile while driving. Based on these results, males are shown to send or read a text while driving. Then this study confidentially says that gender is associated with mobile phone usage while driving. After performing a Chi-Square test among these variables, it shows significance with a p-value of 0.002. Among 150 participants, 2(4.7%) of females and 35(32.7%) of males talk in mobile and 18(41.9%) of females, 75(70.1%) of males use mobile phones to get direction based information while riding. Based on these results, males are shown to use a mobile phone while riding. After performing a Chi-Square test among these variables, it shows significance with a p-value of 0.001. Among 150 participants, 9(20.9%) of females and 50(46.7%) of males carrying more than one pillion on their two-wheeler. Based on these results, males are shown that they are carrying more than one pillion on their two-wheeler. After performing a Chi-Square test among these variables, it shows significance with a p-value of 0.003. Among 150 participants, 10(23.3%) of females and 45(42.1%) of males tried racing along with their peer in their two-wheeler. Based on these results, males are shown that they are racing along with their

peer. Chi-Square test among these variables, it shows significance with a p-value of 0.031. Among 150 participants, 41(95.3%) of females and 80(74.8%) of males driving are influenced by bad road condition. Based on these result, females are showed that their driving is more influenced by bad road condition. Chi-Square test among these variables, it shows significance with a p-value of 0.003.

## Discussion

The findings from this study say that there is a risky driving behaviour among young novice riders. In the present study, prevalence (24.67%) of mobile phone usage for talking while riding is high compared to the similar studies done in India so far. A study was done in Surat city by Mittal P, Garg R. (2013)(5), reported the prevalence of talking on a cell phone while riding is 3.02%, these differences could be due to the variability in time demographic composition studied in these surveys.

The present study says, about 18(12%) of riders and 130(86.67%) of pillions never used a helmet while traveling in a two-wheeler. A report from National Institute of Mental Health & Neuro Sciences(NIMHANS) says that on an average about 100-120 two-wheeler riders and pillions sustain head injuries every month out of which 10-12 succumb to death(6).

In this present study, male drivers are more commonly involved in risky driving behaviours than females. A study from S. Jafarpour.et al.(7) says male drivers often show more aggressive violations than females. A study from G.Gururaj. et al. 2014(8) RTIs is a leading cause of mortality, morbidity, and disability among the young and predominantly males and this study says, nearly 80% of RTIs occurred in the age group of 15- 44 years, predominantly among males and those less educated, an observation that is similar to global findings.

Out of this study, recommendations are behavioral change intervention strategies among the novice riders by involving local stakeholders like traffic authorities, parents, and head of the educational institutes. Road safety knowledge and awareness can be created amongst the young population through education, public talk campaigns and in colleges, showing visuals of harmful effects of risky riding and unsafe riding behaviour, in collaboration with local stakeholder. Awareness regarding safe driving among the youths can be created through the use of most popular used social media.

## Conclusion

Negligence, influence from friends, and attitude towards driving are one of the main reason for the risky driving behaviour. Uneven road condition, environmental conditions like rain, heat, and pollution contribute to anger lead to risky driving. The results showed that risky driving behaviour is high among 18-20 years of age. The study highlights different risky riding behaviours of two-wheeler among young novice riders and points to the

need for inclusion of emotional/anger management components in road safety intervention programs that target young riders.

Interventions in the form of planned behavioural change and education are suggested for promoting safe road behavior among two-wheeler novice riders. Finally, the results emphasize the role that risky driving behavior plays in two-wheeler motor vehicle accidents and suggests the need for further research in this area of risky driving behavior to improve road safety education and law enforcement policies that focus upon ensuring safe driving behaviors.

## Recommendation

- Behavioral change intervention strategies among the novice riders by involving local stakeholders like traffic authorities, parents and head of the educational institutes.
- Road safety knowledge and awareness can be created amongst the young population through education, public talk campaigns and in colleges, showing visuals of harmful effects of risky and unsafe driving behaviour, in collaboration with local stake holder.
- Awareness regarding safe driving among the youths can be created through the use of most popular used social media.

## Limitation of the study

There might be chances of self-reporting biases in assent form. Some school have exams schedules during study period. Non response rate among school going students was more in private and government school as well.

## Relevance of the study

The current study will investigate the risky driving behaviours like speeding, non-usage of helmet, mobile phone usage, not following traffic rules which may be present among the young motorized two-wheeler riders of Davanagere city. The findings of the study will be adding up to the existing literature on risky driving behaviours among youths in an Indian setting.

## Authors Contribution

SK: Conceptualization/ Formal Analysis/ Methodology/ Project administration/ Resources; NV: Data collection/Writing – original draft / Writing – review & editing.

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**Tables**

**TABLE 1 VARIOUS DOMAINS OF RISKY DRIVING**

| Riding speed | n=150 Frequency=n (%) |
|--------------|-----------------------|
| Safe         | 47(31.33%)            |
| Normal       | 61(40.67%)            |
| Fast         | 26(17.33%)            |
| Aggressive   | 11(7.33%)             |
| Slow         | 5(3.33%)              |

**TABLE 2 VARIOUS DOMAINS OF RISKY DRIVING**

| Various domains of risky driving (n=150)   | Yes (%)     | No (%)      |
|--|-------------|-------------|
| crossed over the speed limit of 50 km/h  | 78(52%)     | 72(48%)     |
| Ever crossed the specified city speed limit  | 65(43.33%)  | 85(56.67%)  |
| Ride at high speed in streets that were not adequately lighted                     | 31(20.67%)  | 119(79.33%) |
| Traffic-free hours do you go slow in the intersection                              | 120(80%)    | 30(20%)     |
| Speed up when the lights went yellow   | 51(34%)     | 99(66%)     |
| Slowdown the vehicle speed while crossing the speed breakers                       | 134(89%)    | 16(10.67%)  |
| Sent or read a text in mobile while riding   | 18(12%)     | 132(88%)    |
| Talk in mobile while riding  | 37(24.67%)  | 113(75.33%) |
| Use mobile for taking pictures while driving                                       | 22(14.67%)  | 128(85.33%) |
| Use mobile to get direction or other location-based information                    | 93(62%)     | 57(38%)     |
| Wear a helmet when you ride  | 132(88%)    | 18(12%)     |
| Follow traffic rules   | 142(94.67%) | 8(5.33%)    |
| Raced when the light went green in the traffic signal                              | 53(35.33%)  | 97(64.67%)  |
| overtook any vehicle on the left side  | 50(33.3%)   | 100(66.67%) |
| took a wrong U-turn  | 17(11.33%)  | 133(88.67%) |
| pillion wear helmet  | 20(13.33%)  | 130(86.67%) |
| carry more than one pillion  | 59(39.33%)  | 91(60.67%)  |
| drive after consuming alcohol  | 2(1.33%)    | 148(98.67%) |
| Ride fast through intersections in the absence of red light                        | 26(17.33%)  | 124(82.67%) |
| Stopped in the zebra crossing for people to cross where there is no traffic signal | 117(78%)    | 33(22%)     |
| Noticed signboards while driving   | 132(88%)    | 18(12%)     |
| Always indicate when you were changing lanes/crossing                              | 138(92%)    | 12(8%)      |
| Misjudged the stopping distance you needed   | 46(30.67%)  | 104(69.33%) |
| Misjudge the gap when you were overtaking another vehicle                          | 42(28%)     | 108(72%)    |
| Ride at peak traffic hours   | 82(54.67%)  | 68(45.33%)  |
| Go through a driving school to obtain your license                                 | 60(40%)     | 90(60%)     |
| Drove along with an accompanying person when in LLR period                         | 75(50%)     | 75(50%)     |
| Environmental (rain, sunny day) conditions affect you are driving                  | 98(65.33%)  | 52(34.67%)  |
| Ever ride in the rain  | 122(81.33%) | 28(18.67%)  |
| Ever tried racing along with peer  | 55(36.67%)  | 95(63.33%)  |
| Ride fast when getting late to college/ any work                                   | 113(75.33%) | 37(24.67%)  |
| Bad road conditions influence your driving   | 121(80.67%) | 29(19.33%)  |
| Mood affects your driving  | 87(58%)     | 63(42%)     |
| Get angry by seeing others indulging in rash driving/risky driving                 | 121(80.67%) | 29(19.33%)  |
| Get angry when delayed to work/college due to the traffic jam                      | 118(78.67%) | 32(21.33%)  |
| Get angry when others are not following the traffic rules                          | 118(78.67%) | 32(21.33%)  |
| Feel annoyed when you are preceding vehicle is in a bad condition                  | 125(83.33%) | 25(16.67%)  |
| Ride when tired  | 67(44.67%)  | 83(55.33%)  |
| Ride faster if you are in a bad mood   | 45(30%)     | 105(70%)    |