

## ORIGINAL ARTICLE

## Why road safety is the need of the hour? A study among youth of District Dehradun, Uttarakhand

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[Abstract](#)
[Introduction](#)
[Methodology](#)
[Results](#)
[Conclusion](#)
[References](#)
[Citation](#)
[Tables / Figures](#)

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### Abstract

**Background:** Road traffic injuries are the eighth leading cause of death globally, and the leading cause of death for young people aged 15–29 years. Each year, almost 400,000 young people under 25 years old are killed in a road traffic crash - about 1049 youngsters every day. **Aims and objectives:** To find out the prevalence of road safety related health risk behaviours and its determinants amongst young males of District Dehradun. **Methodology:** It was a cross sectional study conducted over 12 months of duration. The study sample comprised of 1800 male youth aged 15-24years studying in various schools and colleges of District Dehradun. A pre-tested and pre-structured questionnaire (YRBSS) was used. The data was entered and analysed using SPSS-version 20.0. **Results:** Approximately three-fourth of youth reported never using seat-belt while driving and only 4.4% reported always using helmet whereas 24.0% accepted never use of helmet. Approximately one-fourth of the total 1168 at risk subjects in past 30 days, accepted driving a vehicle while drunk and 39.9% reported use of mobile phones while driving. Personality traits (extrovert, neuroticism and lack of direction) turned out to be the major factor in road safety related health risk behaviour. **Conclusion:** Although, road safety related health risk was found to be more among urban youth as compared to their rural counterparts, yet it was found alarmingly high for both rural and urban study population.

### Key Words

Road safety, youth risk behaviours, Road traffic accidents

### Introduction

Youth being the most dynamic and transitional phase of life is vulnerable to various health risk behaviours, of which the foremost is RTA.(1) Road traffic injuries are the eighth leading cause of death globally, and

the top most cause of death for youngsters aged 15–29 years. (2) Every year, almost 400,000 young people under 25 years old are killed in RTA about 1049 youngsters every day (3) India recorded more number of deaths from RTA than any other countries in the world. According to National Crime Records

Bureau Report, there was 17.6% increase in deaths due to RTA from 2008 to 2012. Young drivers in whom, sensation seeking and impulsivity are rampant and are more likely to suffer with depression and anxiety and these emotions can influence the way they drive. This important group start getting influence through their surroundings long before when they use to occupy the backseat of the car/bike and their influence lasts long through independent driving.(4)

Ongoing researches has identified certain characteristics which increases the vulnerability of youngsters to RTA. While few of the factors are intrinsic i.e. age, gender driving skill etc others relate to social factors and their frequency of driving.(5) There is a dearth of research concerning the vulnerability of young drivers, risk of accidents within India and especially in Uttarakhand. Hence there arises a critical need for more research into this topic so that the country may respond successfully to the alarming issue of RTA-related deaths.

### Aims & Objectives

1. To assess the pattern of road safety related health risk behaviour among youth population
2. To find out the association between Road safety related risk behavior with personality trait and sociodemographic factors.

### Material & Methods

**Study Type:** It was a cross sectional study conducted over a period of 1year in rural and urban areas of Dehradun district. The ethical clearance was obtained from the Institutional Ethics Committee before the commencement of the study. As no previous study had been done in Uttarakhand on health risk behavior of Youth for RTA. The sample size was calculated (at 95% C.I & 0.05 precision) based on the assumed prevalence of health risk behaviors among youth as 50%, relative allowable error of 5%. Afterwards, a 10% non-response rate was considered to get the sample size of 1760. On rounding it off the final sample size worked out was 1800.

Multistage stratified random sampling technique was used to draw the required sample. The sample consisted of 1800 male youth aged 15-24 years (7). For comparison point of view, we randomly selected equal number of participants from higher secondary schools, professional / non-professional colleges and rural / urban areas.

A survey was conducted among male youth, using self-administered questionnaire (YRBSS (8) and The Big Five Inventory (9), both modified according to the local needs) after explaining the purpose of the study and obtaining written informed consent from the participants and permission from the competent authorities of the education department. Along with the socio demography & personality trait, the risk behaviors which we have taken from the YRBSS for our study included –use of seat belt, use of helmet, driving while drunk, use of mobile phone while driving. To maintain the confidentiality, participants were allowed to sit separately and the survey was kept anonymous.

After data collection, it was entered using the software Statistical Package for Social Sciences (SPSS) version 20 and analyzed using the same. An analysis was done to describe the frequency table of socio-demography & personality traits of the participants.

Statistical analysis: Chi – square analysis was done to find out significant association of socio-demographic factors & road safety related health risk behavior.

### Results

Out of 1800 male youth participants, the mean age was  $18.68 \pm 2.26$  years, majority were in the age-group of 15-19 years, Hindu by religion (92.1%), were staying at home (71.3%) and belonging to nuclear family (61.8%). According to personality trait, majority of the participants were extrovert (62.4%), conscientious (65.6%) and emotionally stable (53.4%) ([Table 1](#))

Considering the road safety related health risk behaviours, out of all the 1800 study participants, approximately three-fourth (74.2%) reported never using seat-belt. Regarding use of helmet, out of all the 1345 subjects who were at risk of driving in past 12 months, one in every four accepted never use of helmet and only 4.4% reported always using helmet while driving .The responses were almost similar for rural and urban study population. The risk related with not using the helmet is found to be statistically significant for the subjects of rural and urban area ( $p < 0.005$ ).

Approximately one-fourth of the total 1168 at risk subjects in past 30 days, accepted driving vehicle while being drunk .The proportion of drunk driving was found to be more among urban respondents (32.5%) than their rural counterparts (20.8%). Approximately 39.9% reported use of mobile phones

while driving and it was found to be more among urban youth (47.3%) as compared to rural youth (31.8%). These results were found to be highly statistically significant for place of residence ( $p < 0.0001$ ). (Table 2)

Place of residence, age-group, academic profile and personality traits turned out to be the major factors responsible for road safety related health risk behaviour.

## Discussion

Risk taking is a common behaviour among youth as their cognitive abilities and physical development are still under development. Due to these immature and under developed cognitive levels, youth is not able to perceive the consequences of health risk behavior. (10) These health risk behaviours have multi-factorial causation and hence, a multi-faceted approach is needed to be applied to tackle these health risk behaviours.

Road safety related risk behaviours were found to be in abundance in rural study subjects as compared to their urban counterparts and that might be due to lack of enforcement of road traffic rules in rural setup. In addition to it, the road safety related risk behaviour were very high in our study as compared to other studies, most probably due to lack of education in schools regarding road safety and poor enforcement of road traffic rules in Uttarakhand state.

The findings of our study were well supported by a study by Nagalingam S et al. in Chennai (11) as the results obtained were in close proximity. The behavior like drunk driving was seen in lesser (12.5%) participants than our study and texting while driving was also seen among 40%. Similarly, 25.2% of the individuals never wore a helmet whereas a lower number of students (37%) never wore their seatbelt when driving/ riding in a car despite knowing its importance reason being the traffic rules and regulations are more strict in metro cities than in our city or small city. This fact is seconded by Singh SK in his review article on road traffic accidents in India. (12)

Similar findings were reported in a study by Sharma R et al in South Delhi (13) who documented that most of the youngsters (52.4%) reported 'not always' wearing a seat belt while driving car. 23% of them reported 'never' wearing a helmet and Nearly one fifth (20%) of the students rode with a driver who had taken alcohol before driving.

Whereas, in another study by Cacodcar JA et al in rural Goa, (14) in contrast to our study, it was seen that a lesser number (33.2%) of participants reported not always wearing seat belt while riding or driving in the last one yr. 23.7% of the participants reported never/ rarely wearing a helmet while riding a two wheeler in the last one year and 10.7% reported having a ride with a driver who had alcohol before driving once or more in the past 30 days. Very few (3.9%) of the participants rode under the influence of alcohol in the last 30 days. These differences in the findings may be due to differences in implementation of traffic rules and regulations in both the states. In Uttarakhand, traffic rules are not implemented as strictly as in metro or other cities. These road risk behaviours were found to be prevalent in the older age group in their study being similar to our study in this context. Our study shows such road risk behaviours slightly more in 20-24years age group (28.7%) as compared to their younger counterparts i.e. 15-24years age-group (25.6%).

The role of health sector is pertinent in the prevention and control of road traffic accidents. But the role of the medical professionals is always underrated in advocacy and policy making with respect to the prevention and control of RTA. Health sector may play a vital role in the rehabilitation of the victims, improve data collection, develop prevention strategies in order to develop policies interventions for the prevention & control of RTA.

## Conclusion

High prevalence of road safety related health risk behaviours i.e. no use of seat belt, no use of helmet, use of mobile phone while driving and drunk driving was found in this community-based study. Place of residence, age-group, academic profile and personality traits were turned out to be the major factors responsible for road safety related health risk behaviour. This study reports significant urban – rural, age – group and academic profile wise differences, yet high prevalence of risk factors was found in both the groups.

## Recommendation

Road safety interventions need a multi-pronged approach including regulations, legislations and community support. Government should frame new policies regarding road safety with strict implementation of older policies as well. Well aware and law abiding community is the key to attain road safety, hence, the awareness programmes targeting

the community and especially youth should be framed. An integrated approach for road safety education is needed including various Departments and Ministries.

**Limitation of the study**

We might have missed to sample out the Youth Population not enrolled in any of the colleges and those who are either working / employed or staying at home.

**Relevance of the study**

This study contributes to the knowledge of road safety related health risk behaviours and can be helpful as a reference for formulation of policies to keep a check on risk behavior regarding road safety.

**Authors Contribution**

All authors have contributed equally from concept design to making the final draft.

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**Tables**

**TABLE 1 STUDY SUBJECTS ACCORDING TO SOCIO-DEMOGRAPHIC CHARACTERISTICS**

	VARIABLE	FREQUENCY(N=1800)	PERCENTAGE
Age group	15-19yrs	1191	66.2%
	20-24yrs	609	33.8%
Religion	Hindu	1658	92.1%
	Muslim	92	5.1%
	Sikh	35	1.9%
	Other	15	0.8%
Type of residence	Home	1283	71.3%
	Hostel	376	20.9%
	Other	141	7.8%
Type of family	Nuclear	1112	61.8%
	Joint	688	38.2%
Personality Trait / Type Of Behaviour	a. EXTROVERT and INTROVERT		
	Extrovert	1124	62.4%
	Introvert	676	37.6%
	b. CONSCIENTIOUS and LACK OF DIRECTION		
	Conscientious	1181	65.6%
	Lack of direction	619	34.4%
	c. NEUROTICISM and EMOTIONAL STABILITY		
Neuroticism	839	46.6%	
Emotionally stable	961	53.4%	

**TABLE 2 ROAD SAFETY RELATED HEALTH RISK BEHAVIOURS**

VARIABLES	AGE GROUP		PLACE OF RESIDENCE		ACADEMIC PROFILE			PERSONALITY TRAIT - I		PERSONALITY TRAIT - II	
	15-19 years	20-24 years	Rural	Urban	Higher Secondary	Professional course	Nonprofessional course	Extrovert	Introvert	Conscientious	Lack of direction
<b>Use of seat belt</b> n=1800	<b>n1=1191</b>	<b>n2=609</b>	<b>n1 = 900</b>	<b>n2 = 900</b>	<b>n1=600</b>	<b>n2=600</b>	<b>n3=600</b>	<b>n1=1124</b>	<b>n2=676</b>	<b>n1=1181</b>	<b>n2=619</b>
Never	903 (75.8)	432 (70.9)	674 (74.9)	661 (73.4)	503 (83.8%)	416 (69.3)	416 (69.3)	831 (73.9)	504 (74.6)	907 (76.8)	428 (69.1)
Rarely	218 (18.3)	132 (21.7)	171 (19.0)	179 (19.9)	65 (10.8)	141 (23.7)	144 (24.0)	239 (21.3)	111 (16.4)	181 (15.3)	169 (27.3)
Sometimes	60 (5.0)	37 (6.1)	46 (5.1)	51 (5.7)	28 (4.7)	34( 5.8 )	35 ( 5.8)	45 ( 4.0)	52 (7.7)	79 (6.7)	18 (2.9)
Always	10 (0.8)	08 (1.3)	9 (1.0)	09 (1.0)	04 ( 0.7 )	09 ( 0.2 )	05 ( 0.8 )	09 ( 0.8 )	09 (1.3)	14 (1.2)	04 (0.6)
	$\chi^2 - 5.361$		$\chi^2 - 0.567$		$\chi^2 - 48.919$			$\chi^2 - 16.962$		$\chi^2 - 45.124$	
	df =3		df =3		df =6			df =3		df =3	
	p -0.147		p -0.904		p <0.001			p -0.001		p < 0.001	
<b>Use of helmet</b> n = 1345 (74.72%)	<b>n1=781</b>	<b>n2=564</b>	<b>n1 = 679</b>	<b>n2 = 666</b>	<b>n1=225</b>	<b>n2=559</b>	<b>n3=561</b>	<b>n1=844</b>	<b>n2= 501</b>	<b>n1=869</b>	<b>n2=476</b>
Never	184 (23.6)	138 (24.5)	180 (26.5)	142 (21.3)	83 (36.9)	122 (21.8)	117 (20.9)	257 (30.5)	65 (13.0)	112 (12.9)	210 (44.1)
Rarely	346 (44.3%)	241 (42.7)	265(39.0)	322(48.3)	89 (39.6)	248 (44.4)	250 (44.6)	347 (41.1)	240 (47.9)	408 (47.0)	179 (37.6)
Sometimes	214 (27.4)	162 (28.7)	205(30.2)	171(25.7)	47 (20.8)	163 (29.2)	166 (29.5)	211 (25.0)	165 (32.9)	299 (34.3)	77 (16.2)
Always	37 ( 4.7 )	23 ( 4.1 )	29 ( 4.3 )	31 ( 4.7 )	06 ( 2.7 )	26 ( 4.6 )	28 ( 5.0)	29 ( 3.4 )	31 (6.2)	50 (5.8)	10 (2.1)
	$\chi^2 - 0.823$		$\chi^2 - 13.036$		$\chi^2 - 26.937$			$\chi^2 - 55.843$		$\chi^2 - 177.201$	
	df =3		df =3		df =6			df =3		df =3	
	p -0.844		p -0.005		p < 0.001			p < 0.001		p < 0.001	
<b>Drunken driving</b> n = 1168 (64.89%)	<b>n1=683</b>	<b>n2=485</b>	<b>n1 = 559</b>	<b>n2 = 609</b>	<b>n1=190</b>	<b>n2=466</b>	<b>n3=512</b>	<b>n1=690</b>	<b>n2=478</b>	<b>n1=832</b>	<b>n2=336</b>
Never	508 (74.4)	346 (71.3)	443(79.2)	411(67.5)	138 (72.6)	366 (78.5)	350 (68.4)	449 (65.1)	405 (84.7)	705 (84.7)	149 (44.3)
Once	11 ( 1.6)	05 ( 1.0 )	06 ( 1.1)	10 ( 1.6 )	06 ( 3.2)	05 ( 1.1)	05 ( 1.0 )	11 ( 1.6)	05 (1.0)	14 (1.7)	02 ( 0.6 )
2-3 times	101 (14.8)	69(14.3)	65 (11.6)	105(17.2)	32 (16.8)	61 (13.1)	77 (15.0)	128 (18.6)	42 (8.8)	68 (8.2)	102 (30.4)
4-5 times	51 ( 7.4)	49(10.1)	39 (7.0)	61 (10.0)	13 ( 6.8 )	32 ( 6.9 )	55 (10.7)	82 (11.9)	18 (3.8)	32 (3.8)	68 (20.2)
6 or more times	12 ( 1.8 )	16 ( 3.3 )	06 ( 1.1)	22 ( 3.7)	01 ( 0.5 )	02 ( 0.4 )	25 ( 4.9)	20 ( 2.9)	08 (1.7)	13 (1.6)	15 ( 4.5)
	$\chi^2 - 6.230$		$\chi^2 - 23.496$		$\chi^2 - 38.792$			$\chi^2 - 57.542$		$\chi^2 - 219.917$	
	df =4		df =4		df =8			df =4		df =4	
	p -0.183		p < 0.001		p < 0.001			p < 0.001		p < 0.001	
<b>Mobile while driving</b> n = 1168 (64.89%)	<b>n1=683</b>	<b>n2=485</b>	<b>n1 = 559</b>	<b>n2 = 609</b>	<b>n1=190</b>	<b>n2=466</b>	<b>n3=512</b>	<b>n1=690</b>	<b>n2=478</b>	<b>n1=832</b>	<b>n2=336</b>
Never	415 (60.7)	287(59.2)	381(68.2)	321 (52.7)	116 (61.1)	288 (61.8)	298 (58.2)	372 (53.9)	330 (69.0)	579 (69.6)	123 (36.6)
1-2 days	16 (2.3)	3 (0.6)	5 (0.9)	14 (2.3)	11 (5.8)	3 (0.6)	5 (1.0)	10 (1.4)	9 (1.9)	14 (1.7)	5 (1.5)
3-5 days	37 (5.4)	36 (7.4)	27 (4.8)	46 (7.5)	14 (7.4)	29 (6.2)	30 (5.9)	44 (6.4)	29 (6.1)	45 (5.4)	28 (8.3)
6-9 days	90 (13.2)	77 (15.9)	69 (12.3)	98 (16.1)	16 ( 8.4 )	68 (14.6)	83 (16.2)	113 (16.4)	54 (1.1)	96 (11.6)	71 (21.1)
10-19 days	72 (10.5)	53 (10.9)	55 ( 9.8 )	70 (11.5)	17 ( 8.9 )	51 (10.9)	57 (11.2)	83 (12.0)	42 (8.8)	71 (8.5)	54 (16.1)
20-29 days	21 (3.1)	5 (1.0)	11 (2.0)	15 (2.5)	12 (6.3)	7 (1.5)	7 (1.4)	17 (2.5)	9 (1.9)	15 (1.8)	11 (3.3)
30 days	32 (4.7)	24 (4.9)	11 (2.0)	45 (7.4)	4 (2.1)	20 (4.3)	32 (6.3)	51 (7.4)	5 (1.0)	12 (1.4)	44 (13.1)
	$\chi^2 - 13.973$		$\chi^2 - 40.364$		$\chi^2 - 54.437$			$\chi^2 - 43.129$		$\chi^2 - 144.879$	
	df =6		df =6		df =12			df =6		df =6	
	p -0.030		p < 0.001		p < 0.001			p < 0.001		p < 0.001	