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RESEARCH ARTICLE

Knowledge, Attitude and Practices towards Road Traffic Safety Regulations among Health Science Students in Uttarakhand: A cross-sectional study

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Abstract

Background: Every year, more than 20 million people are injured and 1.17 million are killed due to road traffic accidents. According to the WHO, this is the second most important cause of death among 15 to 29 years old. The objective of this study was to determine the knowledge, attitudes and practices of healthcare profession students in Uttarakhand regarding road traffic safety regulations.

Materials and Methods: This descriptive cross sectional study was conducted among 150students of Medical (100) and Nursing Science (50) at All India Institute of Medical Sciences, Rishikesh, Uttarakhand. Stratified random sampling technique was used and data was collected using a self-structured questionnaire.

Results: Data reveals that majority of them drive two wheelers (84%) and only 3.3% of them had learned driving training from driving school. Furthermore, only 38.7% owe the driving license and 20% of them had history of Road Traffic accident. Moreover, even less than one fourth of the students (18.7%) had high level of knowledge about Road Traffic Safety and mean attitude score was 24.12±3.5 (Mean%, 75.4%). Fortunately, 78.7 % students use indicators while turning, 77.3% always blow horn before overtaking, 85.3% do not prefer driving after drinking alcohol, 66.7% always obey all traffic signals. However, 33% of them endangers their lives by not using helmets, (36%) not wears seatbelt while driving/seating in car (34%) and sometimes using mobile while driving (32.7%).

Conclusion: This study reveals that only 18.7% of students has high level of knowledge regarding road traffic safety regulation and majority (81.3%) of them had moderate to low level of knowledge. However, they had good mean score of attitude but still they endanger their lives, probably this has contributed in their inappropriate practices of road traffic safety. Therefore, they require sanitizations program to improve the knowledge, attitude and practice of road traffic safety regulations to reduce the chances of road traffic accidents.

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Introduction:-

Every year the lives of almost 1.24 million people are cut short globally as a result of a road traffic accident. Around 20-50 million more people suffer from non fatal injuries. According to World Health Organization (WHO), road traffic accidents kill more people around the world than malaria, and are the leading cause of death for young people aged between 15-29 years old, especially in developing countries.[i]

The primary reason for the road accidents is increasing motorization, along with this contributing factors are over speed, poor following of traffic rules, driving while drinking, not wearing seat belts and helmets, using mobile phones while driving and poor road designs.In 2010, there were close to 5 lakh road accidents in India, resulting in more than 1.3 lakh deaths and inflicted injuries on 5.2 lakh persons. These translate into one road accident per minute and one road death every 4 minutes. Unfortunately, more than half the victims were in economically active age group. The loss of main bread winner can be catastrophic.[ii,]**Error! Reference source not found.**

According to a report on accidental deaths in India 'Road Accidents' cases in the country have marginally increased by 0.7% during 2013 compared to 2012 while casualties in road accidents in the country decreased by 1.2% during 2013 as compared to 2012.It has also been observed that the rate of deaths per thousand vehicles has decreased marginally from 1.4 in 2009 to 0.9 in 2013, as the number of vehicles in the country has increased by 78.0% and the quantum of 'Road Accidents' has increased by 5.1% during the same period. [iii]

In the state of Uttrakhand, 10.8 persons are killed per 10000 motor vehicles which is the very close to national average of 10.9 and during the year 2010, there were 773 fatal accidents causing 931 deaths and injured 1656 persons[iv]. The state's capital Dehradun tops the list of persons injured in accidents followed by Haridwar, Udhamsinghnagar, Tehri and Chamoli. Hence we realized the need to assess the knowledge, attitude and practices of health sciences students regarding road traffic safety regulations in Uttarakhand.

Materials And Methods:-

A descriptive cross sectional study was conducted among the Medical and Nursing students of All India Institute of Medical Sciences, Rishikesh, Uttarakhand. A sample of 150 medical (100) and nursing (50) students was drawn using stratified random sampling technique. Data was collected through a self-structured questionnaire, which was distributed randomly among the students through Faculty In-charge of Medical and Nursing programs.

The questionnaire consisted of personal data and background information followed by a knowledge questions, attitude scale and expressed practice scale. The knowledge questionnaire consisted of 15 questions. Attitude scale consists of 8 statements, which were categorized as: strongly agree, agree, disagree and strongly disagree. The expressed practice scale consists of 12 statements categorized under always, sometimes and never practiced. The study was approved by Institutional Ethical Committee and confidentiality of information and anonymity of subjects was maintained. The data was collected after obtaining the verbal consent of the subjects. Data was analyzed using SPSS version 16 and data was presented using descriptive statistics.

Results:-

The datarevealed that majority of the students (73.9%) were in the age group of 18-19 years and nearly equal number of them were males (52.7%) and females (47.3%). Furthermore, majority of them (75.3%) were either rural or suburban dwellers. Majority of them (61.3%) of them verbalized that their parents' monthly income is in between 10,001 – 50,000 per month (Table 1).

Table 1:-Socio-demographic characteristics of the students

N =150

Socio-demographic characteristics	***f (%)***
Age in years	
17	07 (04.7)
18	51 (34.2)
19	58 (38.9)
20	23 (15.4)
≥21	10 (06.7)
Gender	
Male	79 (52.7)
Female	71 (47.3)
Course of Study	
Medical	100 (66.7)
Nursing	50 (33.3)
Parent's monthly income in Rupees	
Don't Know	14 (09.3)
≤ 10,000	16 (10.7)
10,001 – 50,000	92 (61.3)
≥ 50,000	28 (18.7)
Place of residence	
Urban	36 (24.0)
Rural	72 (48.0)
Semi-urban	41 (27.3)

Table 2 depicts that significantly good number of students (61.3%) did not owe a driving license, but still they drive two wheelers (84%) and four wheelers (16%). Moreover, only 3.3% of them learned driving from a formal driving school, rest of them (96.7%) learned it from family members/ friends. Furthermore, 20% of students verbalized the history of road traffic accident and in addition, 62% of them also mentioned the history of road traffic accident among their family members/ friends.

Table 2: Driving and Road Traffic Safety related information of students

N = 150

Variables	***f (%)***
Status of driving license ownership	
Owes	58 (38.7)
Did not owe	92 (61.3)
Type of vehicle drives	
Two wheelers	126 (84.0)
Four wheeler	24 (16.0)
Source of driving training	
Family/ friends	145 (96.7)
Driving school	05 (03.3)
H/o Road Traffic Accident (RTA)	
Present	30 (20.0)
Absent	120 (80.0)
H/o RTA among family/ friend	
Present	93 (62.0)
Absent	57 (38.0)

Illustrated data in Table 3 shows that nearly one fourth of the students (23.3%) had low level, about halfof them (58%) had moderate level and only few of them (18.7%) had high level of knowledge about Road Traffic Safety. The Mean attitude score of the students regarding the Road Traffic Safety was 24.12±3.5. The mean percentage of attitude score was 75.4% with range of 8-32.

Table 3:-Level of Knowledge and mean attitude towards Road Traffic Safety among students

N = 150

Knowledge& Attitude	***Statistics***
Level of Knowledge	
Low	35 (23.3)
Moderate	87 (58.0)
High	28 (18.7)
Attitude Score	
Mean±SD	24.12±3.5
Mean Percentage	75.4%
Range	8 – 32

**Attitude Score; Minimum= 8 & Max= 32; Figures given in parenthesis is percentage*

It was found good number of students always practiced healthy road traffic safety regulation such as use indicators while taking turns (78.7%), blow horn before overtaking (77.3%), obey traffic signals, lights, signs (66.7%). However, many of them endanger their life by never practicing very crucial road traffic safety regulations such as never wearing helmet (36%), seat belts (34%), sticking to zebra crossing (24.7%) and following specified speed limits (10.7%).

Table 4:-Practices of Road Traffic Safety among students

N = 150

Road Traffic Safety Practices	***Always f (%)***	***Sometimes f(%)***	***Never f (%)***
Wear a seat belt when you are driving/ seating in a four wheeler?	54 (36.0)	45 (30.0)	51 (34.0)
Keep specified speed limit in mind while driving?	68 (43.0)	66 (44.0)	16 (10.7)
Use helmet when driving a two wheeler?	41 (27.0)	55 (36.7)	54 (36.0)
Obey all traffic signals, lights and signs?	100 (66.7)	38 (25.3)	12 (8.0)
Driving a vehicle when alcoholic?	---	22 (14.7)	128 (85.3)
Use mobile phone while driving a vehicle?	---	49 (32.7)	101 (67.3)
Stick to zebra crossing while crossing a road?	31 (20.7)	82 (54.7)	37 (24.7)
Use indicators while taking turns and look both sides before turning?	118 (78.7)	18 (12.0)	14 (9.3)
Use right side of road while driving?	---	44 (29.3)	106 (77.7)
Overtake from left side?	19 (12.7)	75 (50.0)	56 (37.3)
Blow horn before over take?	116 (77.3)	24 (16.0)	10 (06.7)

Discussion:-

Road traffic fatalities remain a major public health problem, with the highest fatality rates per 100000 population in low and middle income countries in Asia. These countries have higher road traffic fatality rates (21.5 and 19.5 per 100 000 population, respectively) than high-income countries (10.3 per 100 000). WHO predicts that road traffic injuries will rise to become the fifth leading cause of death by 2030.[1]Indian data shows that road traffic injuries account for 20-50% emergency admissions, 10-30% of hospital admissions, and 60-70% of people hospitalized with traumatic brain injuries. [v]

We had nearly equal number of male and female participants. The majority (73.9%) were in the age group of 18-19 years, which is the most vulnerable group for road traffic accidents.Majority of our students were from middle class families, while few were having a monthly parental income <Rs 10000. This must be highlighted that persons from poor economic settings are disproportionately affected by road traffic injuries, even in high income countries. For instance a study in New South Wales, Australia [vi], found that children of relatively lower socioeconomic status were at highest risk of a road traffic injury. Another research from Bangalore[vii] has found that mortality from road traffic injuries was 13.1 and 48.1 per 100000 in poorer socioeconomic groups of urban and rural populations respectively, compared to 7.8 & 26.1 among their more affluent urban and rural counterparts.

54.7% of students in study admitted about crossing the specified speed limits. Similar practices have been observed by another study from south India[viii], where 68% of students admitted about it.Many other Indian as well as

international studies have shown similar observations.[ix,x,xi.] An increase in average speed is directly related both to the likelihood of a crash occurring and to the severity of crash consequences[xii,xiii.] A 5% increase in average speed leads to an approximately 10% increase in crashes that cause injuries, and a 20% increase in fatal crashes.[xiv] Pedestrians have a 90% chance of surviving a car crash at 30 km/h or below, but less than a 50% chance of surviving impacts of 45 km/h or above [14,xv].

The risk of involvement in a crash increases significantly above a blood alcohol concentration (BAC) of 0.04 g/dl [xvi,xvii]. Young or novice drivers are at a much increased risk of having a road traffic crash when under the influence of alcohol. Laws which establish lower BAC between zero and 0.02 g/dl for young/novice drivers can lead to reductions of between 4-24% in the crashes involving young people[xviii].14.7% of our participants were indulging in drunken driving at times. Moreover, majority of our study participant were from age group between 18-19 years. This finding has been observed by others[8,9]. A study from Haryana reported that 18% Road traffic accident victims gave history of having consumed alcohol within 6 hours before RTA[xix.] However the percentage of accident victims under influence of alcohol was reportedly lower in older studies from India (4.6-8%)[xx,xxi] showing that incidence of drunken driving is increasing in India.
Only 27% of students in our study always wore a helmet while driving. Wearing a motorcycle helmet correctly can reduce the risk of death by almost 40% and the risk of severe injury by over 70%[xxii.] When motorcycle helmet laws are enforced effectively, helmet wearing rates can increase to over 90%[xxiii,xxiv.]

66% of participants in our study use a seat belt (36 % always use it, another 30% consented that they use it off and on), while 34% told that they never use. A study from another medical college from India has shown 74% participants wearing the seat belts[2.] Wearing a seat belt reduces the risk of a fatality among front seat passengers by 40-50% [24,xxv,xxvi] and fatalities of rear seat occupants by 25-75% [25,26,xxviixxviii.] Mandatory seat belt laws, their enforcement and appropriate public awareness campaigning have been shown to be very effective in increasing rate of wearing seat belts[25,xxix,xxx]. 67% of study participants never use mobile phone while driving. Similar findings have been reported by Jogand S et al.[xxxi]

A recent study on adolescent medical students from Maharashtra[9] has found that knowledge about road traffic rules was good in 42.6%, average in 42.53%, and only 14% of students had poor knowledge. These findings are similar to our observations depicting that young student population is having an overall satisfactory knowledge but when it comes to actual use of this knowledge, many falter. In the above mentioned study, 80% donot use helmets, 68% donot have driving license and nearly two third do not always follow the traffic rules. Thus it is clear that though good attitude can play a major role in changing the behavior and practice of individuals, this is hardly enough. This must be accompanied by strict implementation of traffic laws. We also recommend that the knowledge about traffic rules may be included in basic school curriculum, so that children have an idea about road safety from a young age.

Conclusion:-

The present study assessed the knowledge, attitude and practice of health sciences students regarding road traffic safety regulations and found that students were having moderate level of knowledge.However, they had significant positive attitude towards obeying them. The human body is highly vulnerable to injury and that humans make mistakes. A safe road traffic system is therefore one that accommodates and compensates for human vulnerability. No country can afford to sit back and assume that its road safety work is complete and international community must continue to recognize road traffic injuries as an important health and development issue and intensify support for their prevention. Significant progress in national road safety requires close collaboration between relevant leaders and agencies. India being one the global leader in road traffic accidents has much work ahead.The knowledge of young individuals is moderately good but they still require frequent sensitization programs and implementation of traffic rules to develop practices which are actually safe on the road.Roadsafety measures through signboards, posters and mass media need to be strengthenedto reduce the incidence of road traffic accidents.We also suggest addition of road safety knowledge as a part of curriculum of school children.

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