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AN EDUCATION INTERVENTION TO IMPROVE AWARENESS ON ROAD SAFETY: A STUDY AMONG SCHOOL GOING TEENAGERS IN INDORE

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ABSTRACT

Introduction: The rapid and unplanned urbanization in India along with rise in number of motor vehicles lead to an alarming increase in morbidity and mortality owing to road traffic accidents (RTA) over the past few decades. Most of the factors responsible for RTA and its fatal consequences are preventable. A comprehensive multipronged approach can mitigate most of them.

Objective: Our objective to do this study is to assess the level of knowledge of basic traffic rule in school going children and increase their knowledge by 30%.

Methods: We have conducted educational intervention study on basic traffic rule awareness on 159 school going children age group 16-18 of Bal Vinay Mandir Higher Secondary School over a period of 3 months. Their knowledge about basic traffic rules was assessed by pre and post questionnaire which included basic traffic rules from the motor vehicle act 1989 and basic traffic signs.

Results: Total 21.4% of the student knew to slow down vehicle near a zebra crossing while after intervention the number increased to 75.5%. Only 23.3% of the student knew the use of low beam of light in night while after intervention the number increased to 67.3%.

Conclusion: Knowledge level increased after intervention so regular reinforcement of rules certainly would help in increasing awareness and also help people follows them.

Key words: Road traffic accidents, traffic rules, awareness.

INTRODUCTION

Road transportation has brought enormous benefits to society and individuals by facilitating movements making easy access to a wide range of socio economic services. In India motor vehicle population is growing at a faster rate than the economic and population growth. The surge in motorization coupled with expansion of road network has brought with it the challenge of addressing adverse factors such as road accidents. Road accidents involve high human suffering

and socio-economic costs in terms of premature deaths, injuries, loss of productivity etc. The problem of road safety remains acute in India. During the year 2011, there were around 4.98 lakh road accidents, which killed 1.42 lakh people and injured more than 5 lakh persons, many of whom are disabled for rest of their lives¹.

Globally, road side accident (RSA) is 10th leading cause of death in all age groups. According to World Health Organization estimates, RSA is the

9th leading cause of death as per on the basis of disability adjusted life year. ² It was estimated that over 75% of RSA occur in the so called developing countries, even though these countries account for only 32% of total motor vehicle fleet, which involves 65% of pedestrians and 35% of school children ².

Research in industrialized countries suggests that traffic police operations need to be well-advertised to ensure maximum effect on road-user behaviour. There is limited literature available regarding accident related behavior in developing countries. Road safety-educated students will grow to be leaders of communities forming opinions. The chances of RSA can be averted to a large extent, if school children who are going to be adults of tomorrow are made aware of road safety measures. Hence present study was focused on school children to study the effect of educational intervention in improving their knowledge of risk factors pertaining to road side accidents

METHODOLOGY

A Cross sectional Educational intervention was done on 159 students of age group 16-18 years studying in BAL VINAY MANDIR School after taking a written consent from the school authorities. All these students were having learning license with them and were driving to school every day. Students without a vehicle were not included in the study. Semi-structured pretested questionnaire was administered to students to assess their knowledge of traffic rules. The students were divided into three batches. A short lecture of one hour duration explaining traffic rules using audio visual aid was given. Lecture was given from experts from the traffic police department. The same questionnaire was then again administered to them. Pre and post test evaluation was done with application of appropriate statistical test (Mc Nemar test).

RESULTS

Learner's license is issued to youths of sixteen years and above. Driving on the left side of the road was known to 70.4% of the students whereas after intervention the number increased to 95.6% (statistically significant). Of the 159 student surveyed only 33.3% of the student knew that while turning to the right one should approach to the centre of the road first but after the intervention it increased to 86.8% which is statistically

significant. Prior to the intervention only 45.3% of the student knew about the specific hand sign for stopping vehicle while after the intervention 79.9% of the student knew of the same, which is statistically significant.










Use of helmet for protection was known to 89.3% whereas after intervention the number increased up to 98.7% (statistically significant). Prior to the intervention only 72.3% of the student knew that mobile use is prohibited while driving and is punishable while after the intervention 91.2% of the student knew of the same (statistically significant). Students' average knowledge about rule for overtaking in pre test and post test were 47.65% & 83% respectively.

Before the intervention only 35.2% of the student knew that one should overtake from right side of the road while after intervention the number increased to 84.9% (statistically significant). Of the 159 student surveyed only 35.8% of the student knew that a solid line on the middle of the road indicates that overtaking is prohibited while after the intervention the number increased up to 74.2% (statistically significant). Prior to the intervention only 50.9% of the student knew that one should not speed up when other vehicle is overtaking while after the intervention 86.2% of the student knew of the same, which is statistically significant. Before the intervention only 21.4% of the student knew to slow down vehicle near a zebra crossing while after intervention the number increased to 75.5% (statistically significant).

Of the 159 student surveyed only 35.2% of the student knew the indication of yellow traffic sign while after the intervention the number increased up to 63.5% (statistically significant). Only 23.3% of the student knew the use of low beam of light in night while after intervention the number increased to 67.3% (statistically significant). Before the intervention only 23.3% of the student knew the sign of railway crossing while after intervention the number increased to 86.3% (statistically significant). Prior to the intervention only 38.4% of the student knew that sign of one way road while after the intervention 71.7% of the student knew of the same.

Before the intervention only 21.4% of the student have knowledge about the sign of speed limit which increased to 74.2% (statistically significant). Knowledge of the sign of bend ahead while aft increased up to 54.1% (statistically significant). After the intervention sign of pedestrian prohibited was known to 79.9% .(Table 1)

Table 1-Knowledge of Basic Traffic Sign

Traffic sign	Pre-Test (n=159) (%)		Post-Test (n=1590) (%)		P Value
	Correct response	Incorrect response	Correct response	Incorrect Response	
 U turn prohibited	119(74.8)	40(25.2)	136(85.5)	23(14.5)	0.014
 Railway crossing	37(23.3)	122(76.7)	133(83.6)	26(16.4)	0.00
 Stopping prohibited	19(11.9)	140(88.1)	112(70.4)	47(29.6)	0.00
 one way	61(38.4)	98(61.6)	114(71.7)	45(28.3)	0.00
 Divider ahead	68(42.8)	91(57.2)	116(73)	43(27)	0.00
 Speed limit	34(21.4)	125(78.6)	118(74.2)	41(25.8)	0.00
 Horn blow compulsory	105(66)	54(34)	141(88.7)	18(11.3)	0.00
 Bend ahead	37(23.3)	122(76.7)	86(54.1)	73(45.9)	0.00
 Sign indicate pedestrian prohibited	45(28.3)	114(71.7)	127(79.9)	32(20.1)	0.00

DISCUSSION

Road traffic awareness among school going children is one of the most important aspect towards safety concerning traffic rules. The age group of school going children is rapidly emerging as a major population of vehicle owners and thus they also constitute major number of accident with recent data suggesting that 30.3%² of total accident occur between age group of 15-24 years, so it is very important to sensitize this population about road traffic rules because these children are future of the nation. In this study knowledge on keeping driving license and registration certificate was 88.7% which was increased to 98.7% after intervention. This was very high compare to results of a study conducted at Chandigarh in 2000³.

Zebra crossing sign was known to only 21% of students which was low as compared to study conducted in Chandigarh (39.5%). However in our study after intervention awareness increased up to 75.5% for the same. This is statistically significant.

Head injuries is major cause of death in road traffic accident and wearing helmet protects one from injuries however in our study only 89.3% students had knowledge about this. In the study conducted in Chandigarh only 62.4% had knowledge about the same. Post intervention knowledge increased up to 98.7%. Mobile phone use while driving is detrimental. However, only 72.3% of the student responded positively about it.

Setting speed limits has traditionally been the responsibility of states, except for the period of 1973-1994. During that time, government enacted

mandatory speed limit ceilings on interstate highways and similar limited access roads through a National Maximum Speed Limit. Congress repealed the National Maximum Speed Limit in 1995. Since then, 34 states have raised speed limits to 70 mph or higher on some portion of their roadway systems⁶. Youngster often crosses this limit which is an important risk factor in accident. In our study 21.4% were aware about speed limit sign. In our study after the intervention awareness increased up to 74.2% for same sign. This is statistically significant.

Highway driving entails faster speeds & more overtaking. Most accidents occur while overtaking or at junctions. As a responsible, informed car owner who cares about his safety & that of others on the road, it is important to follow the best practices. In our study 47.6% students were aware about right way of overtaking while similar study conducted in Chandigarh on school going children showed 28.2% of student knew the right way of overtaking. In our study after the intervention awareness increased up to 83% for same. This is statistically significant.

It is usually seen that most of people start driving on road without any prior experience in any driving institute which is risk factor for accident. In our study 95.6% were aware of going to driving institute. After the intervention knowledge increased up to 99.4%. These are statistically significant. The data above indicate that level of awareness is good still people are reluctant to join a driving school.

Ambulance and fire brigade is a life saving vehicle so every person have responsibility to give space for passing of this vehicle. If the ambulance is making an emergency transport using

red lights and siren, one may not follow more closely than 500 feet behind the vehicle. In our study only 83% have knowledge about giving space for emergency vehicle while after intervention which is increase up to 97.5% which is statistically significant.

Headlights are equipped with the option to use a high beam to enhance vision further down the roadway and the use of a low beam when near other vehicles to minimize the glare of headlights onto others. 76.7% students prefer to use high beam of light continuously however after the intervention this decreased to 32.7% which is statistically significant. This may be due to lack of knowledge about basic driving rules. In our study only 86.8% of student had knowledge about stop line at square, triangle or intersection while after intervention knowledge increased up to 98.1%. Above data indicate despite good awareness students do not follow the rule at intersection

According to 'ACT 125' putting of heavy luggage at the back of the vehicle are prohibited. Overloading will negatively impact dynamic behavior and increase braking distances, due to the greater momentum. An overloaded vehicle might not be able to protect its occupants in a crash either. In our study 20.8% of students had knowledge about act 125 and after intervention which increased up to 79.9% which is statistically significant.

Railway crossing are either passive crossings which have warnings such as signs, or active crossings which have automatic warning devices such as boom gates, flashing lights and warning tones.⁷ Fewer collisions take place at level crossings with active warning systems,⁸. Level crossings present a significant risk of collisions between trains and road vehicles and it is a fact that unguarded railway crossing is more dangerous than guarded railway crossing. In our study 23.3% students had knowledge about unguarded railway crossing sign while after inter-

vention increase up to 83.6% which is statistically significant. Reason for low knowledge in pre test may be because the unguarded railway crossings are mostly found in outside the peripheries and our study group belongs to city.

CONCLUSION

Result of study indicate only 54% student had knowledge about basic traffic rules while after the intervention knowledge increased up to 82.2%. So there is a need to sensitize our community by giving education. Continuous reinforcement and education reminding them of traffic rules can bring about a positive change in them and motivate them for strictly sticking to norms of traffic.

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