

# Effectiveness of Child-to-Child Approach in Imparting Knowledge regarding Road Traffic Safety among Scholars in Selected Schools of Goa

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**Abstract:** Road traffic accidents are the leading cause of injuries and death among children resulting from violation of road safety rules and regulations by the road users. Creating awareness regarding road traffic safety among school-going children can be a preventive strategy in reducing the incidence of accidents in schoolers. An experimental research design was used to assess the effectiveness of child-to-child approach in imparting knowledge regarding road traffic safety among schoolers in selected schools of Goa. Multi-stage sampling technique was used to select 262 schoolers studying in standard eight as sample for the study. Three tools: demographic pro forma, structured questionnaire on road traffic safety and structured questionnaire on road signs were developed, tested for content validity, reliability and used in the study. The students were divided into two groups and a factorial method was used to assess the effectiveness of the two teaching methods (lecture v/s child-to-child approach). Findings reveal that child-to-child approach ("t" value for Tool II=16.042 and Tool III=15.528 at  $P < 0.01$ ) was more effective in improving the knowledge of schoolers as compared to the lecture method ("t" value for Tool II=12.803 and Tool III=13.982 at  $P < 0.01$ ). Special and continuous health education for school children using innovative methods of teaching (child-to-child programme) in their formative year could improve their knowledge and develop a positive attitude towards road traffic safety. Thus, eventually leading to reduction of road traffic accidents.

**Keywords:** child-to-child approach, effectiveness, knowledge, planned teaching programme, road safety

## 1. Introduction

School-age is one among the critical phases of life. It is a period of major physical, physiological, psychological and behavioural change.<sup>1</sup> During this age, children are less aware of the dangers to their life and so more vulnerable to injuries. One of the leading cause of injury and death among children of this age group is road traffic accidents (Global Status Report on Road Safety, 2018).<sup>2</sup> These accidents are a result of violation of road safety rules and regulations by the road users. Accidents could be avoided if safety rules and regulations are inculcated in children at a very tender age (Derfika, 2016) by creating awareness regarding traffic rules and regulations among school-going children (Pinto, 2019).<sup>3,4</sup>

School children are open minded, likely to accept information and agreeable to modify their lifestyles to prevent injuries and accidents (Varma, 2015).<sup>5</sup> Schools are a cost-effective platform to provide safe, simple and effective health interventions to the school students (Bundy, 2017).<sup>6</sup> Innovative approaches of teaching can be utilized to gain the interest and involvement of the students. One of the most effective and less stressful method is the child-to-child approach. It was launched in the year 1978, during the International Year of Children. Audio-visual aids were developed to attract the interest of children. This programme helps to communicate messages through children and create awareness regarding health among other children and community. It encourages children to take care of themselves, of younger children, members of the education system and work together to improve their education as well as their overall health (Lansdown, 2004).<sup>7</sup>

The present study aims to impart knowledge regarding road traffic safety to the schoolers through the innovative methods of teaching: lecture and child-to-child approach in turn the schoolers will impart knowledge to other children, family members and neighbours and create awareness regarding road traffic safety and reduce the number of injuries and accidents.

## 2. Need for the Study

### 2.1 Statistics Worldwide

According to Annual Global Road Crash Statistics, (2019) on an average, 3,700 people lose their lives on roads every day. An additional 20-50 million suffer non-fatal injuries, often resulting in long-term disabilities. More than 90 percent of all road fatalities occur in low-income and middle-income countries that have approximately 60 percent of the world's vehicles. On an average, road traffic accidents cost countries 3 percent of their gross domestic product (Annual Global Road Crash Statistics, 2019).<sup>8</sup>

### 2.2 Statistics at National Level

According to the Report of Ministry of Road Transport and Highways, (2018) India is the leading country in terms of total number of road accident. Around 4,67,044 road accidents were reported in the country out of which 1,51,417 died and 4,79,418 persons were injured in the year 2018. There was a raise in the number of road accidents by 0.46 percent compared to the previous year that is 2017.

About 85 percent of the road accident-related deaths occur in the most productive age group of 18-60 years. It not only causes severe trauma to the families of the victims but also

results in huge economic loss to the nation. (Annual report 2017-2018).<sup>9</sup>

### 2.3 Statistics of State of Goa

Goa has a population of 15.15 lakhs and the current number of vehicles registered in Goa is 13.8 lakhs. Based on the information sought from the Directorate of Planning, Statistics and Evaluation, Porvorim-Goa, 2018, it is said that on an average 200 vehicles are registered daily in the state of Goa and approximately every household owns one car and two scooters. With the rapid increase in the number of vehicles on the road, the vehicle users and the pedestrians are prone to meet with an accident.<sup>10</sup> Therefore, road traffic safety is one of the most serious public issues in our state.

**Table 1:** Accident Scenario in Goa according to Goa Traffic Cell (Years 2017, 2018, 2019).

Sr. no	Particular	Jan –Dec 2017	Jan- Dec 2018	Jan- June 2019
1.	Total accidents	412	343	268
2.	Fatal accidents	28	24	24
3.	Pedestrians killed	6	2	7

### 2.4 Objectives of the study

- 1) To develop and validate the poster on road traffic safety for schoolers.
- 2) To evaluate the effectiveness of lecture method in imparting knowledge (Group 1) regarding road traffic safety among schoolers.
- 3) To evaluate the effectiveness of child-to-child approach in imparting knowledge (Group 2) regarding road traffic safety among schoolers.
- 4) To compare the effectiveness of two teaching methods (lecture method and child-to-child approach) in improving post-test knowledge scores regarding road traffic safety among schoolers.
- 5) To determine the association of selected demographic variables and pre-test level of knowledge regarding road traffic safety among schoolers.

### 2.5 Hypotheses

**H<sub>1</sub>** -There is a significant difference between pre-test and post-test knowledge score of schoolers (Group 1) receiving information on road traffic safety through lecture method by the researcher.

**H<sub>2</sub>**-There is a significant difference between pre-test and post-test knowledge score of schoolers (Group 2) receiving information on road traffic safety through the child-to-child approach method.

**H<sub>3</sub>**- There is a significant difference in the mean post-test knowledge score on road traffic safety among schoolers in Group 1(lecture method) and Group 2 (child-to-child approach).

**H<sub>4</sub>**- There is a significant association between selected demographic variables and the pre-test level of knowledge regarding road traffic safety among schoolers.

### 3. Methodology

An experimental research design using factorial method was used to assess the effectiveness of the two teaching methods (lecture v/s child-to-child approach). A multistage sample design was employed to cover units at different level. At the first stage three talukas were selected from 6 talukas through convenience sampling technique. At the second stage, two schools were selected from each taluka through convenience sampling technique. At the third stage, VIII standard students were selected through convenience sampling technique. Sampling frame work was prepared and proportionate stratified random sampling technique was used to select 300 students. The 300 students were further divided into two equal groups as Group 1 and Group 2 through simple random sampling: lottery method.

#### 3.1 Tools used

Three tools: demographic pro forma, structured questionnaire on road traffic safety and structured questionnaire on road signs were developed, tested for content validity (Tool I: 0.9, Tool II: 0.978 and Tool III: 0.988), reliability (Tool II: 0.81 and Tool III: 0.8) and used in the study.

#### 3.2 Data collection

A sampling frame of students was prepared by obtaining the list of students enrolled in standard VIII from the school office. Random selection of half the proportion of students from the sampling frame using lottery method was done. The total targeted sample size was 300 schoolers. The assent form was handed over to the selected students by the respective class teachers with the school stamp on it. The assent form was duly filled by the parents and was returned within two-three days. The sample size decreased because some parents did not give consent and some students were absent during the data collection process. After attrition the sample size was 262. On day 4, pre-test was conducted for all selected students. The 262 students were divided into two groups: Group 1 and Group 2 through simple random sample method using lottery method. Each group comprised of 131 students. Group 1 students were imparted knowledge on the topic road traffic safety by the researcher using the poster. On day 6, post-test for Group 1 students was conducted followed by Group 1 students imparted knowledge to Group 2 students in the ratio 1:1 using the posters (Child-to-child approach). On day 8, post-test for Group 2 students was conducted followed by overall teaching for Group 1 and Group 2 students was done by the researcher.

### 4. Findings

With regard to the demographic variables of Group 1 and Group 2, majority of the schoolers were males (Group 1 were 57.3 percent and Group 2 were 55.7 percent) and resided in rural area (Group 1 were 68.7 percent and Group 2 were 81.7 percent). Out of 262 schoolers, only 16 schoolers had family members working in transport department. Students had obtained information regarding road traffic safety from multiple sources (One hundred and thirty students had obtained information from school/school syllabus, 83 students had obtained from social media, 68

students obtained from family and friends and 32 students obtained from printed materials). Family members owned more than one type of vehicle (113 students owned a cycle, 218 families owned a two-wheeler, 16 families owned a three-wheeler and 99 families owned a four-wheeler). Most of the families owned a two-wheeler and majority (98 students) ride a two-wheeler without license, six drive a four-wheeler without license and 72 students ride a cycle.

Findings (Table 2 & 3) reveal that child-to-child approach (“t” value for Tool II=16.042 and Tool III=15.528 at P<

0.01) was more effective in improving the knowledge of schoolers as compared to the lecture method (“t” value for Tool II=12.803 and Tool III=13.982 at P< 0.01). There was a significant association between the pre-test scores of knowledge on road traffic safety and the selected demographic variables; gender ( $\chi^2$ :11.37; at P<0.01), area of residence ( $\chi^2$ :7.86; at P<0.02), family member working in transport ( $\chi^2$ :1.77, at P<0.05) and source of information ( $\chi^2$ :11.95; at P<0.01).

**Table 2:** Comparison between the two teaching methods regarding road traffic safety, N=131+131

Road traffic safety Tool II	Max score obtained on the tool	Post-test Group 1		Post-test Group 2		t-value of Group 1	t-value of Group 2	P-value of Group 1	P-value of Group 2
		Mean	SD	Mean	SD				
Total	18	16.205	4.416	16.329	3.354	12.803	16.042	<0.01	<0.01

Note: Group 1: Lecture method and Group 2: Child-to-child approach. P= 0.05

**Table 3:** Comparison between the two teaching methods regarding road signs, N=131+131

Road signs Tool III	Max score obtained on the tool	Post-test Group 1		Post-test Group 2		t-value of Group 1	t-value of Group 2	P-value of Group 1	P-value of Group 2
		Mean	SD	Mean	SD				
Total	22	20.687	2.793	21.160	1.779	13.982	15.528	<0.01	<0.01

Note: Group 1: Lecture method and Group 2: Child-to-child approach. P= 0.05

## 5. Implications

- 1) The school health nurses, road traffic personnel, school teachers and parents can play a major role in maintaining the safety of the children by imparting knowledge regarding road traffic safety measures.
- 2) Nurses, teachers and parents can also use innovative methods of teaching, that is child-to-child approach, to impart knowledge regarding personal hygiene, good habits, prevention of water and soil pollution, segregation of waste. Child-to-mother approach and child-to-community approach can also be utilized to spread messages of various disease conditions and its preventions for example, hand washing, personal hygiene, prevention of communicable diseases, etc.
- 3) Child-to-child approach can be more effective in solving psychological and social issues and also used for counselling.
- 4) Adolescents is an age group in which peers influence each other and the method of communication and the language used proves the age-related goals which is an important factor in proving effectiveness of child-to-child approach. However, it could also be used by children for promoting negative behaviour or adopt dangerous habits of riding/driving vehicles without a license, speeding the vehicles, disobeying rules and regulations, drug abuse, alcohol consumption, etc. which are all influenced by peers and which can put their life in danger. Hence, adequate guidance and supervision of children is imperative and cannot be ignored.

## 6. Conclusion

The present study was conducted to evaluate the effectiveness of child-to-child approach in imparting

knowledge regarding road traffic safety among schoolers in selected schools of Goa. The study findings reflect that there is a significant gain in the post-test level of knowledge among schoolers regarding road traffic safety and road signs through child-to-child approach as well as lecture method. However, child-to-child approach was more effective method of teaching compared to lecture method conducted for the schoolers. This implies special and continuous health education for school children using innovative methods of teaching (child-to-child programme) in their formative year could improve their knowledge and help in developing a positive attitude towards road traffic safety. Thus, eventually leading to reduction of road traffic accidents.

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