ORIGINAL RESEARCH ARTICLE　　　　　　　　　　　　　　　　**OPEN ACCESS**

A STUDY TO ASSESS THE EFFECTIVENESS OF STRUCTURED TEACHING PROGRAMME ON KNOWLEDGE REGARDING ROAD SAFETY AMONG 5TH STANDARD CHILDREN AT M.P.E.V E.M SCHOOL, VISAKHAPATNAM

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ABSTRACT

Background: During 1990's, road traffic injuries ranked with among the leading causes of deaths in the world. About two percent disabilities are reported due to injuries. In the developed nations 57% male deaths and 43% of female deaths in this age group are due to injuries. Mainly traffic accidents and drowning are common. As a result is that today on the highways there seems to be compulsion of any kind of any of the traffic rules and regulations. The road should be maintained in good condition ways, so, it will reduce accidents. Many children receive no road safety education. A survey of over 1000 schools in selected developing countries revealed that less than half taught road safety. Raising awareness of the need for improved such education is not enough. There is need to train teachers in their use. Educate the drivers about the importance of road signs particularly like speed limits and no overtaking zones. While driving never overtake on a left hand because cannot see the vehicle coming in opposite direction. While crossing the road, they should do so at zebra crossing as per as possible and only after making sure that the road is clear. Indian roads are much different from foreign countries. The standards followed by much developed countries are not applied during making of roads in India. Therefore the safety is much less and accidents can occur very frequently. Above all, school going children have very less knowledge regarding road safety. Therefore it is the goal to increase the knowledge and awareness to the children as well as to their parent's road safety. **Objectives of the study:** 1. To assess the existing level of knowledge about road safety in 5th standard Children. 2. To improve this knowledge and bring our responsible attitude to their own safety and to the safety of others. 3. To promote their understanding of responsibility required by the rules that influence road traffic. 4. To assess their knowledge of the causes and consequence of road accidents. **Methods and materials:** A Pre-experimental Research design was used and study was conducted from August 2010 to October 2010 at M.P.E.V.E.M School, Visakhapatnam, Andhra Pradesh. There is an experimental and control group. All the subjects were given a pre test, received treatment and then the subjects act as their own controls and pre treatment and post treatment data were analyzed for differences. The sample of 40 school children who are present in 5th class at the time of data collection and who met the inclusion criteria were selected by using non probability sampling technique and data were analyzed both descriptively and analytically using frequency, percentage distribution, Chi-Square and paired t test. **Result:** Majority of school children – 20(60%) had inadequate knowledge on road safety. The mean value obtained for the existing level of knowledge regarding road safety among school children for control group was 34.4 and for experimental group was 35.7. The mean pre test knowledge score was 35.7 with Standard Deviation 3.92 and the post test the mean knowledge score was 40.7. Standard deviation 3.45. Paired t test value was -7.56. **Conclusion:** Majority of the school children was in the age group of 9-12 years, 5th standard children and they are living in clean environmental condition in urban area. The existing knowledge among 5th standard children was moderate regarding road safety. The structured teaching programme on road safety was effective for 5th standard children.

INTRODUCTION

Statistics for last few years show that there is a large increase in the number of accidents from year to year only one vehicle is involved or because the injuries (or) damages are not very serious. It can be therefore imaged that the actual number of accidents may be much more. In these accidents, large scale loss of life occurs every year. On an average 212 road accidents occur in Maharashtra every day and 24 persons die there in while 145 are injured. Broadly 30 percent of persons dying in road accidents are below the age of 30 years. It is clear that unless urgent relieving measures are taken, the occurrence of these accident and resultant casualties will go on rising. In many developing countries, pedestrians are a particularly imposed to being harmed group of road users. For certain types of pedestrians such as the young have been identified on being especially at risk in these road accidents. Accidents involving children less than 16 years at age on average contributes to 20 percent of pedestrian occurrence of accidents in developing countries making them a major safety problem and cause for country. Many children who have been injured as pedestrians require long term medical treatment and come. This can be a considerable nearly load for injured child's family. Young pedestrian causalities generally come for the poor area that is Distinct from others of the community. The loss to the family is two - fold firstly the cost of caring for the injured child and secondly the loss of income that the child earns or will earns. This loss of income means that the injury or that of a child can be a poor family lasting as well on personnel deep sorrow. When a village and its facilities like a source of water supply (or) school or place (or) employment like industries or located on the opposite side of the road to reach the facilities are imposed to being hit by vehicles travelling at great speed on the road. Due to the above reason the present study is intended to assess the effectiveness of structured teaching programme on knowledge regarding road safety among 5th standard children.

Background of the Study

The transport research laboratory UK recognized as the leading and must active research institution on road safety problems in the developing world. The fundamental aim of such work has been to provide scientifically sound advice on ways of reducing road accidents. The Central Road Research Institute (CRRI), India, was established in 1986, in order to give road safety greater emphasis. While a few years back, road safety had as many as 14 staff employed full time in that area. The main objective of CRRI is to create road safety awareness amongst the decision makes in India. The Indian Institute of Technology (IIT), India, the center for biomedical engineering has focused on injury which includes pedestrians, bicyclist and wheeler riders. The Korea Transport Institute (KOTI), Korea formally operated under the Ministry of Transport. It seeks to provide policy guidance on road safety issues. Traffic sciences institute, Korea is recently established research institute which operates within the Korea road traffic safety association. A major factor in many of these accidents is a back of road safety knowledge leading to unsafe behavior by children. Research in developing countries has shown that in general, children's road users' knowledge is poor when compared with children in developed countries such as UK. If children are to be safe when near traffic, they must have

adequate knowledge understanding and skills about dangers of traffic and how to confront the situation.

Road Accidents in India (2000-2005)

S.No.	Year	Mortality Rate /1000 Population
1.	2000	399.3
2.	2001	405.2
3.	2002	408.7
4.	2003	435.1
5.	2004	464.5
6.	2005	465.2

Prevalence rate of road traffic accidents

Need for the Study: The World Health Day 2004 focused on this rapidly growing public health problem of accidents. The "Road Safety is no accident" is a message to the public that be solution to this grave problem lies in their own hands. Action can be taken on a number of fronts to prevent these neediness deaths and disabilities, and the immense loss and suffering they cause. Many programmers and policies exist to prevent road traffic crashes. They include strategies to address rates of speed and alcohol consumption, promotion of helmets and seat belts and other restraints, and greater visibility of people walking and cycling. The theme for World Health Day 2004 was road safety. Every day as many as 1, 40,000 people are injured on the world's roads. More than three thousand (3000) die and some 15 are disabled for life. Each of those people has a network of family, friends, neighbors, colleagues or classmates who are also affected emotionally otherwise. Families struggle with poverty when they lost a bread winner or have the added expense of caring for disabled family members. According to World Health Organization, nearly 1.18 million people lost their lives every year due to road accidents. Almost 18000 young people are injured in Australia roads every year. In Australia, 958 persons killed in the year of 2001, 958 persons killed in the year of 2002, and 931 persons killed in the year of 2003. Current figures are alarming enough. Even more alarming are trends. If they continue by 2020, the number of people killed and disabled every day on the world's roads will have grown by more than 60% making road traffic injuries a leading contributor to the global burden of disease and injury. Today they account for 90% of the deaths and disabilities resulting from road traffic injuries. Soon, that will rise to 95%. By taking action now and by working together, we can reverse the current trends and save million of adults and children from death and disability between now and 2020, and many millions more people in the years beyond. Now - a-days only a few children walk to school compared to previous generation. This is because parents feel safe to drive their children to school resulting in poor road crossing skills among children. Hence, children should be given awareness regarding road safety. There is less number of research studies done on knowledge of primary school children regarding road safety measures. By watching school children after their school timings, walking as they like, getting shouting by vehicle drivers, passers-by, vendors, house-wives, the researcher felt the need to educate the children regarding road safety measures. If the children are educated regarding causes and prevention of road traffic accidents, rules and regulations for crossing the roads and signal lights, such type of accidents can be reduced to an extent. The purpose of this study was assessing the existing level of knowledge regarding road safety among 5th standard school children and providing

structured teaching programme regarding road safety measures.

Statement of the Problem: A study to assess the effectiveness of structured teaching programme on knowledge regarding road safety among 5th standard children at M.P.E.V. E.M School, Visakhapatnam.

Operational Definitions

1. **Effectiveness:** It is the desired level of knowledge gained by 5th standard school children after structured teaching program regarding road safety measures.
2. **Knowledge:** Knowledge returns to the confident understanding of a subject with the ability to use it for a specific purpose that understands of importance of road safety for children.
3. **Road Safety**: The condition of being safe which is designed to prevent injury (or) damage.
4. **Structured Teaching Programme**: A series of planned events which gives information to a class (or) pupil so on to help them to learn something in a well - being organized manner.
5. **5th Standard Children**: School children between 9-12 years of age group are considered.

Hypotheses

1. There will be significant relationship between pre-test and post-test on knowledge regarding road safety among 5th standard children.
2. There will be significant association between the knowledge on road safety and religion of 5th standard children.
3. There will be significant association between knowledge on road safety and gender of 5th standard children.
4. There will be a significant association between knowledge on road safety and type of family among 5th standard children.

Variables

Independent variable: The independent variable of the study was structured teaching programme.

Dependent variable: The dependent variable in this study was knowledge regarding road safety.

Attribute Variables: The variables studied were age, gender, religion, type of family and source of information.

Conceptual Framework

According to Endsley 1988, situational awareness is the preparation of the elements in the environment within a volume of time and space the comprehension of their meaning and a projection of their status in the real future.

Theory of Situational Awareness/ Endsley and Smolensky Model of Situational Awareness

The model of the cycle presents situational awareness as a dynamic intellectual between human and their environment. Endsley's model is arranged into three levels of situational

assessment, each stage being a necessarily precursor to the next higher level. This model follows a chain of information processing from perception through the interpretation to prediction from the lowest to the highest the levels of situational awareness are as follows:

Level 1-(SA): Perception of the elements in the environment

This is the lowest level of situational awareness and is associated with the post's perception of information from craft instrumentation the behavior of the aircraft of the people in the cockpit, of the aircraft in the sky, air traffic control. If data could be elicited at this stage the operator might be able to confirm the status of a particular but will not have integrated the data.

Level 2-SA: Prediction of future status

This is the highest level of situational awareness and associated with ability to project the future of the elements on the environment. Accuracy of the prediction is highly dependent upon the accuracy of level 1 SA and level 2 SA. Anticipation of the projected future situation provides the pilot with time to resolve conflicts and plan a course of action to meet their goals. Situational awareness is embedded within a cognitive model of human activity in a dynamic system. This explains why two people failed with different conclusions as might people with different abilities experience and teaching. Endsley shows an increasing of awareness as the information is processed at the higher level. it is based on general cognitive processes. He proposes that situational awareness is normally discussed in terms of system specific sub categories such as made awareness, spiritual awareness, and time awareness.

REVIEW OF LITERATURE

Antamoshina (2008), the international community considerable the problem of supporting the road traffic safety and the decrease of the number of dead and wounded persons due to the road traffic accidents on a major one. The governments of certain countries develop the programs forgot to decrease its scale. The results of activities in the framework of these programs implemented its scale. The results of activities in the frame work of these programs implemented in France, the Netherlands and Great Britain are presented. For each of these countries the substantial progress upto 40% among the road traffic dead persons was succeeded. This evident achievement attracted interest of the Russian government. Their Netherlands and great Britian is among the most effective countries of Europe in the field of road traffic safety. The awareness of the autinities set which facilitated in achieving such results can support the government of other countries in developing one's own programs and gives hope to deal successfully with the problem.

Beyer and Kerk (2009), conducted a study on Road traffic crashes are a major came of death and injury, especially in low and middle income countries. It is estimated that road traffic injuries will have risen from ninth to third in world disease burden rankings by 2020, according to 2.3 million death globally street lighting has been suggested as a relationally low cost intervention with the potential to prevent traffic crashes. Garg and Hyder, (2006), India is the largest country in the south Asian region with all the problems. Faced by rapidly

developing nations, especially increasing motorization. In spite of such developments, there are limited data in the literature addressing the problem of road traffic injuries. This article is an attempt to estimate the magnitude of the problem through published literature. Road traffic injuries are a significant burden on the health care system in India. The most commonly affected group is young males. Pedestrians constitute a large majority of the victims and there is high early morality in most cases. There is lack of population – based data on road traffic injuries in India and there is large heterogeneity in the published data. This is an important research agenda for the country. Immediate steps are required to be this problem to limit the loss of life and resources.

Hyder *et a.* (2006), the mean annual incidence for urban road traffic injuries was 109.8 per 100,000 children, and males were twice as involved as their female counterparts. Children between 10 to 14 years constitute the most frequent group involved in road crashes (36%) while pedestrians represent an average of 68% of all childhood RTI cases. Twenty healthy life years per 1,000 children and adolescents are being lost annually in the region from RTI. There is an urgent need to develop a regional health research agenda to generate an accurate estimate of the burden of road traffic injuries on children. This is a new challenge for child health and there is a need to raise awareness among policy makers to promote appropriate interrelations.

JHA, (2005), Road traffic injuries kill about 3000 people and are injured and disabled for life every day. Developing countries account for 90% of global road traffic deaths. In Nepal, as per estimates of morbidity and morbidity for 1988-1999, injury contributed 9% to total mortality and was the third leading cause with road traffic accidents occupying eighth position in overall ranking. Therefore, the epidemic of road traffic injuries in Nepal is still in its early stge. However, it threatens to grow especially unless immediate action is taken. Here an attempt is made to review the recent publications in this field.

MATERIALS AND METHODS

Research Approach: In this study evaluation research approach was applied that involves finding out how well a programme, practice procedure or policy is working. The study was intended to assess the effectiveness of a structured teaching programme.

Research Design: This study is a two group pre test – post test designs. There is an experimental and control group. All the subjects were given a pre test, received treatment and then the subjects act as their own controls and pre treatment and post treatment data are analyzed for differences.

Schematic Representation of Research Design

Study period: The study was conducted from August 2010 to October 2010.

Setting of the Study: The study was conducted in the school, M.P.E.V.E.M School, Visakhapatnam. This is having strength about 300 students where the investigator selected 40 members for ever research work. The average attendance of the school children was good.
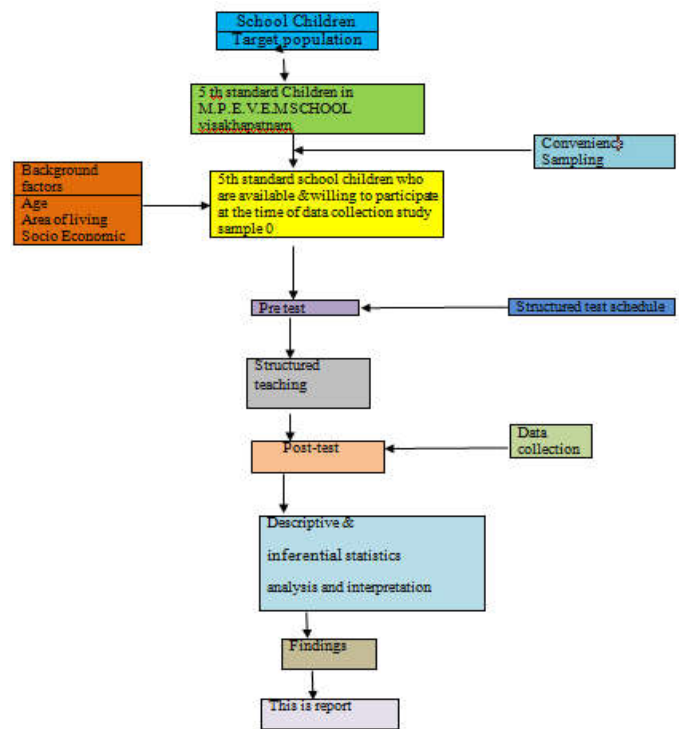
Population: The target population was the school children. Accessible population refers to the aggregate of cases which confirm to the designated criteria and accessible to the researcher. Thus the accessible population were 5th class students in M.P.E.V.E.M School, Visakhapatnam, Andhra Pradesh.

Sampling: The sample size was determined based on the following criteria.

- Nature of study – Evaluate study
- Nature of population – heterogeneity
- Type of sampling technique – convenience sampling
- Number of variables – from attribute variables
- Statistical tests adopted for data analysis

In this study, 40 school children who were present in 5th class at the time of data collection were selected from M.P.E.V. E.M School, Visakhapatnam.

Sample Criteria

Inclusion criteria
- School children prevent in 5th classes at M.P.E.V.E.M School, Visakhapatnam.
- School children of 9-12 years of age group.
- School children who were willing to participate in the study.

Exclusion criteria
- School children with any physically and mentally handicapped children.
- School children who are not present that day.

Data Collection Instruments and Techniques: The questionnaire has 2parts of the collection of data.

PART 1: Demographic data of school children there were 5 items.

PART 2: Sought information on the knowledge regarding road safety among school children. There were 50 items. The nature of questions was multiple choices, true or false, yes or no.

Validity of the instrument: A questionnaire was prepared with the help of subject experts to conduct the test. Pilot study was conducted to determine the practicability, reliability and validity of the tool.

Reliability: Reliability is the ability of an instrument to constantly measure what if purpose to measure the extent to which random variation influences consistency, stability and dependability was established through pre-test and post test method. The post test was conducted after giving health education for the experimental group (N=10) evaluation was done using.

Ethical Consideration: A formal written permission was obtained from the Principal of M.P.E.V.E.M School, Visakhapatnam. Verbal consent will be obtained from the children before conducting the study. Confidentiality and anonymity of the subjects will be maintained throughout the study.

Analysis and Interpretation

Statistical analysis is a method of rendering quantitative information meaningful and intelligible. It is intended to bring to light the findings of the study. It deals with the analysis and interpretation of data collected in accordance with hypothesis stated for the study. The data collected was analyzed by using descriptive and inferential statistics.

Table 1. Descriptive Statistics of the Pre – test and Post – test Scores

| Description	Pre-test	Post-test
Mean	35.7	40.7
Standard error	0.876896441	0.771533
Median	35.5	41
Mode	35	38
Standard deviation	3.921600103	3.4504
Sample Variance	15.37894737	11.90526

Section A: This section deals with Distribution of sample according to their demographic variables of study subjects.

**Table 2. Frequency and Percentage of sample according to demographic variables**

Demographic Data	Frequency	Percentage
Age in years		
9 – 10	15	75
10 – 11	3	15
11 – 12	2	10
Sex		
Male	12	60
Female	8	40
Religion		
Hindu	8	40
Christian	5	25
Muslim	3	15
Others Type of family	4	20
Nuclear family	13	65
Joint family	7	35
Source of information		
Parents	13	32.5
Teacher	15	37.5
Friends & Relatives	7	17.5
Books & Media	5	12.5
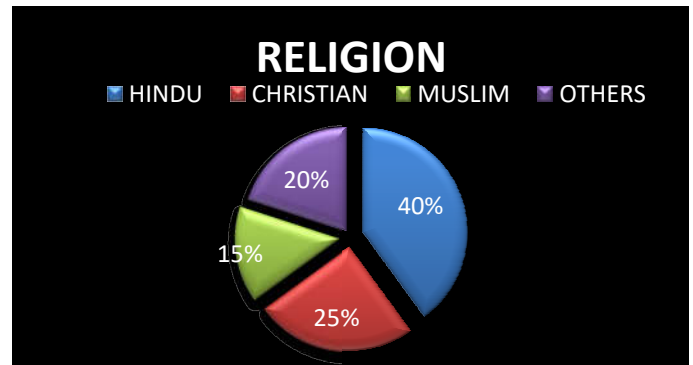
**Figure 1. Distribution of Samples According to the Sex**
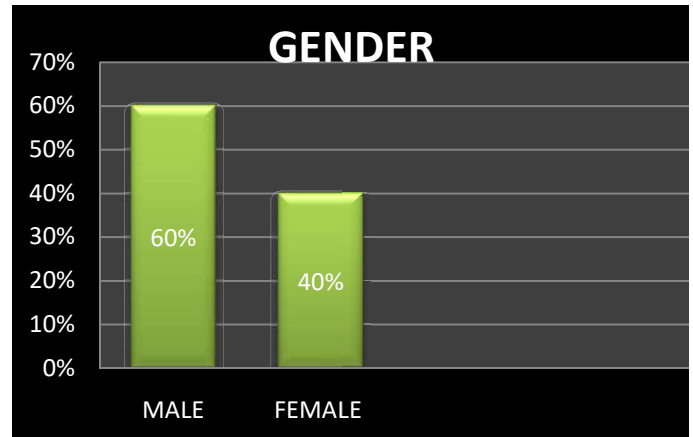
Figure 2. Distribution of Samples According to the Gender
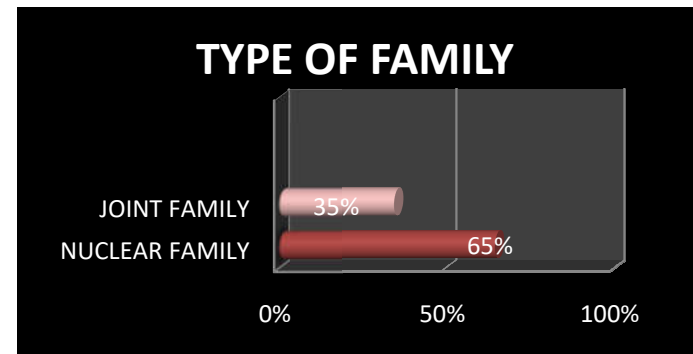
Figure 3. Distribution of Samples According to the Type of Family

Section B: This section deals with effectiveness of structured teaching programme on knowledge regarding road safety measures among 5th standard children.

Table 3. Frequency and percentage distribution according to knowledge level N=40
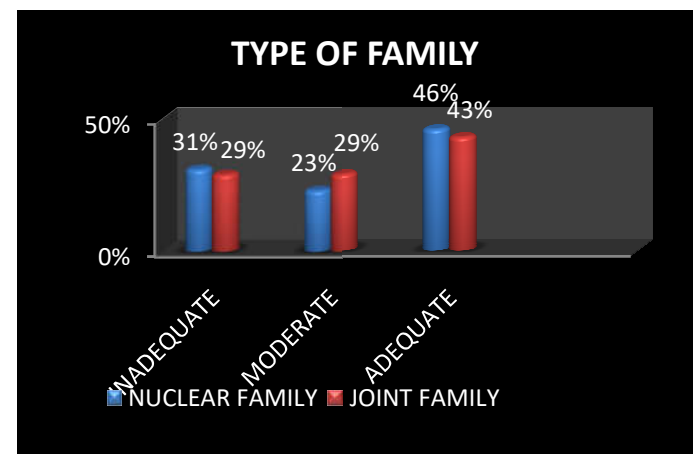
Level of Knowledge	Pre test		Post test	
	No	%	No	%
In adequate	25	62.5	-	-
Moderately Adequate	8	20	13	32.5
Adequate	7	17..5	27	67.5

Section C: This section deals with the distribution of mean and standard deviation of effectiveness of structured teaching programme on knowledge regarding Road safety measures among 5th standard children.

The Table 4 represents an increase in the mean of 5, which implies that there is increase in the knowledge when the training was given. With hypothesis test of 't' with significance level 0.01 the statistic value of t = -7.56, for which the p-value = 0.000(<0.01) rejects the hypothesis H$_o$, and researchers concludes that there is a significant relationship between pre-test and post-test knowledge on road safety among the school going children studying 5th standard and the training was successful.

Section D: This section deals with association between the level of knowledge and selected demographic variables. The above Table 5 depicts there is no significant association between Knowledge level and type of family, with chi-square and Degrees of freedom = 2. As the p-value shows 0.9656, the researcher rejects the hypothesis and concludes that "There is no significant association between the knowledge on road safety in type of gender of school going children studying 5th standard." The above Table 6 depicts there is no significant association between Knowledge level and religion, with chi-square 3.1, and Degrees of freedom = 6. As the p-value shows 0.7962, the researcher fails to rejects the hypothesis and concludes that "There is no significant association between the knowledge on road safety among religions of school going children studying 5th standard."

Table 5. Association between knowledge and Type of Family

Type of family	Knowledge			Chi-square value
	Inadequate	Moderately	Adequate	
Nuclear	4	3	6	
Joint Family	2	2	3	χ2 = 0.07
Significant Association				p- value = 0.9656<0.05

Table 6. Association between knowledge and Religion

	Knowledge			Chi-square value
	Inadequate	Moderately	Adequate	
Hindu	2	2	4	
Christian	1	1	3	χ 2=3.1
Muslims	1	1	0	
Others	1	2	1	p-Value=0.7962>0.05
No significant association				

DISCUSSION

The purpose of the study was to assess the effectiveness of structured teaching programme on knowledge regarding road safety among 5th standard school children. The findings of the study were discussed on the study objectives.

1. To assess the existing level of knowledge regarding road safety among 5th standard school children. The existing level of knowledge regarding road safety among school children in pre-test areas (<60) having inadequate knowledge.

2. To find the effectiveness of structured teaching programme on knowledge regarding road safety among school children. The mean score of knowledge regarding road safety for control group was 34.4 and experimental- 35.7 with a 'y' value of which is significant difference in the pre-test and post-test knowledge a scores at level.

3. To find the association between the level of knowledge regarding road safety among school children and selected background factors.

A chi square value of which was significant at level revealed that there is significant association between age and knowledge.

Conclusion

The conclusion drawn from the findings of the study are

- The majority of the school children were in the age group of 9-12 years, 5th standard children and they are living in clean environmental condition in urban area.
- The existing knowledge among 5th standard children was moderate regarding road safety.
- The structured teaching programme on road safety was effective for 5th standard children.

Implications

Nursing Services:
- From this study the nurses would be able to understand the importance of road safety.
- With the knowledge of children, the nurses would be able to prevent them from road accidents.
- From this study, the nurses would be able to encourage the children to follow traffic rules effectively.

Nursing Administration:
1. From this study, the nurses would be able to improve the knowledge of the 5th standard children about road safety.
2. Nursing administrators should provide in service education for nurses to improve their skills in education the 5th standard children.
3. Nursing administration should provide the time, place and the materials for the nurses to educate the children with the age of 8-12 years.
4. They should encourage the 5th class children to follow traffic rules regularly.

Nursing Education:
1. Student possesses updated knowledge regarding traffic rules.
2. Student showed improve knowledge about roar safety.

Nursing Research:
1. The study will be a motivation of budding researchers to conduct similar studies on a large scale.
2. The study will be a reference for the research scholars.
3. The in-depth study on the implementation of traffic rules must be pursued.

Limitations

- The tool used for the study was not a standardized one, of all the limitations in the use of the constructed tool were applicable to this study.
- Randomization was not done as all the school children who were present in the school were selected as per our sample.
- Some of the school children were not willing to participate in the study, they were excluded.

Recommendations

- All the schools should have arrangement for educating the school children regarding importance of road safety.
- Maximum publicity through mass media should be given to create awareness among the children regarding prevention of accidents.
- A study on assessing the knowledge and implementing and following traffic rules for school children can be conducted.
- Nurses working in a school should be given structured teaching programme regarding importance of road safety and should be motivated to educate regarding the same.
- An experimental study can be taken up on knowledge regarding road safety in 5th standard children.
- A longitudinal study could be conducted using the post test after one month, six months and one year to see the retention of knowledge.
- A descriptive study on road safety measures among elementary school children could be conducted at rural areas.
- A comparative study could be done between urban and rural areas.

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