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Research article

Study to assess the effectiveness of a video-assisted teaching programme on knowledge regarding road traffic accidents and related first aid measures among schoolchildren in selected schools of Navi Mumbai

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Abstract

In many developing countries, injuries are one of the major causes of death in children in the age group of 1-5 years. **Objectives:** To assess and compare the knowledge of schoolchildren before and after Video Assisted Teaching Programme regarding road traffic accidents and related first aid measures. To find the association between the level of knowledge regarding Road Traffic Accidents and related first aid measures with selected demographic variables. **Methods:** A Pre experimental one group pre-test - post-test design was adopted. The study was based on Imogene King's Theory of Goal Attainment. A convenient sampling technique was used to collect data from 100 school children with the help of a semi-structured interview schedule. The content validity was done by 12 experts from the field and reliability was tested using Cronbach's alpha with the score of 0.7. **Results:** The result showed that there was a significant difference between the pre-test score and the post-test score. The pre-test mean score was 10.47, and after the video-assisted teaching, the post-test mean score was found to be 14.69. It was also observed that mother's education in demographic characteristics had an impact on the child's knowledge regarding Road Traffic Accident with a "p-value of 0.035. **Conclusion:** The findings revealed that Video Assisted Teaching Programme had an effect on knowledge regarding road traffic accidents and related first aid measures among school children.

Keywords: Assess, Effectiveness, Knowledge, Video-assisted teaching, Road traffic accidents, First aid, and Programme

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1. Introduction

World Health Organization defines the accident as an unexpected and an unintended event causing physical and mental injuries. Children were less aware of danger are one of the most vulnerable groups, which can be explicated with the ongoing development of neuromotor, cognitive, physical, social, psychological and sensory skills [1].

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Children's are prone to get various minor and major health problems.About ¾th of the children are considered as unhealthily and surviving with impairment of physical and intellectual functions due to poor health status. Early detection and anticipation of the problem may prevent impairment [2].

Children are at an increased risk of accidents and drowning and posting because of their inherent curiosity, careless attitude and innocence, during their process of learning the child is at increased risk of hurt himself [3]. The common pediatric emergencies are drowning, accidents, foreign body aspiration, poisoning, bits, and stings etc. An accident can be defined as an unexpected, unplanned occurrence of an event which usually produces unintended injury, death or property damage. Accidents are an important health problem throughout the world and are a major cause of

morbidity and mortality in children [4]. In today's world, in the developed as well as the developing countries, danger prevails not only on the roads, but it also exists in the home and playgrounds. Accidental death in children particularly occurs during playing, while flying kites, fall from the terrace, injury from sharp objects, and injury from firecrackers particularly during the festive seasons, improper use of electrically operated toys, sharp toys, scissors, knives and blades [5].

Home accidents rank highly among all accidents and occur in or around the house. The home is the place where children spend most of their time. Most home injuries occur especially among children of 4-5 years because they are not aware of the hazards and are more susceptible to environmental risks and are curious and desire to master new skills [6]. Injury in the home is extremely common, accounting for approximately 1/3 rd of all injuries in the united states and children under the age of 5 years are in the highest risk groups for home injuries [7]. As home accident becoming an important cause of death in children world over ,it can be minimized or prevented through measures that can be taken by parents at home so Parents should control and supervise the environmental conditions, elimination of hazardous condition from the areas where children play and live which can minimize the frequency of home accidents [8]. So training should be given to parents especially mothers on risk factors and ways to prevent home accidents so as to protect the 0-6 age group children from accidents [9].

As home accident becoming an important cause of death in children world over ,it can be minimized or prevented through measures that can be taken by parents at home so Parents should control and supervise the environmental conditions, elimination of hazardous condition from the areas where children play and live which can minimize the frequency of home accidents [10]. So training should be given to parents especially mothers on risk factors and ways to prevent home accidents so as to protect the 0-6 age group children from accidents. Worldwide surveys have shown about the pediatric emergency varies from country to country. The 5 million children died from injuries with a global mortality rate of 83.7 per 1,00,000 per annum [11].

A total of 2,83,000 death was reported due to falls. In the year 2004, an estimated 3,76,000 children drowned approximately 97% of drowning deaths occurred in low and middle-income countries [12]. In India is accounts for an estimated of 12,75,000 children are grievously injured. A total of 22,000 deaths was reported due to drowning. In Karnataka at least 30,000 children's are dying annually due to accidents, drowning, and poisoning. In developing countries, the pediatric emergency is shown to be as numerous as in developed countries [13].

In Tamilnadu, the number of neonatal injuries would be much higher as the date from those children seen in other hospitals, general practitioners managed at home have not been included thus it is estimated that the city of Chennai would witness on an average 250 deaths an early ten thousand children hospitalized every year. In round Tamilnadu yearly 22000 death was reported annually [14]. In Dindigul estimated of two lakh, five thousand children are grievously injured. A total of Seven thousand four hundred deaths were occurring annually due to accidents, poisoning, and drowning [14].

Statement of the problem

Study to assess the effectiveness of a Video Assisted Teaching Programme on knowledge regarding Road Traffic Accidents and related First Aid Measures among schoolchildren in selected schools of Navi Mumbai

2. Materials and methods

The study was conducted in Bharti Vidyapeeth School at Sector -3, Belapur. This school was established on 14th June 1983 and it is affiliated with CBSE board. In this study, the target population is the school children between the age group of 6 -12 years. The primary section in Bharti Vidyapeeth School has a batch of 300 students. The accessible population of the study consists of all the school children between the age group of 6 -12 years studying at Bharti Vidyapeeth School, Sector 4, Belapur.nIn this study, sample consisted of 100 school children of the age group 6 -12 years studying in Bharati Vidyapeeth School at Sector 3, and full fill the inclusion criteria. In this study, the sampling technique used is Non-probability convenient sampling. Convenient sampling enables the use of most conveniently available people as study participants.

Sampling criteria:

Sampling criteria specify population characteristics and delimit the population of interest.

Inclusion criteria

Inclusion criteria are also called as eligibility criteria by which people are selected for inclusion in a study.

In this study inclusion criteria include the school children:

- Who are willing to participate in the study.
- Who are present at the time of the study.
- Who are between the age of 6 years to 12 years.
- Who can comprehend English?

Exclusion criteria

In this study exclusion criteria includes children:

- Who are above 12 years of age.

Section A- It includes 10 items to assess the socio-demographic data such as age, gender, education of father, education of mother, place of living, type of family, the occupation of father, occupation of mother, any previous information regarding road traffic accidents, if yes, from where and transportation to school . The items related to sociodemographic characteristics were not scored.

Section B- It includes 17 questions to assess the knowledge of school children in relation to road safety measures. It is

covered of 3 sub-areas which include meaning, causes, and precautions to be taken while on road. The total score for the section II is 17.

Section C - It includes 5 questions to assess the knowledge of school children on the first aid measures of road traffic accidents. It contains 5 questions based on first aid measures. The maximum score for section 3 was 5. For each question, participants have to put a tick mark against the correct option.

Pilot study:

A pilot study is a small-scale version or trial run designed to test the methods to be used in a larger, more rigorous study. This study is used to assess the feasibility and practicability of research methodology and to ensure that the investigation laid out in the protocol was realistic. A pilot study was conducted at Bharathi Vidyapeeth primary school, sector-3, Belapur from 07.11.2016 to 21.11.2016 after getting approval for conducting the pilot study from Principal, Bharati Vidyapeeth primary school, sector-3, Belapur. The researcher selected 12 samples that fulfilled the inclusion criteria for the pilot study by convenient sampling method. In this study, the reliability of tool was tested on twelve sample selected according to the predetermined criteria using the test-retest method, and the reliability was analyzed using Cronbach's alpha method. The reliability score was 0.7 which showed a highly positive correlation of tool. Hence the questionnaire was reliable to use.

3. Results:

Analysis of the study is organized in the following sections:-

- Section 1– Distribution of demographic variables among the schoolchildren.
- Section 2– analysis of knowledge in relation to road traffic accidents and it's first aid measures before and after the video-assisted teaching programme among the school children.
- Section 3– Association of knowledge about road traffic accidents and it is first aid measures before and after the video-assisted teaching programme among the school children with a selected demographic variable.

Section 1 -Distribution of demographic variables among the schoolchildren

Table no 1: Distribution of sample based on Age

Age	Frequency	Percentage
8 years	10	10
9 years	40	40
10 years	47	47
11 years	3	3
Total	100	100

Table 1 categorizes the sample into age groups of 8 years, 9 years, 10 years and 11 years. The highest percentage of the sample was seen in the age group of 10 years and 9 years with 47% and 40 % respectively. The lowest percentage was seen in the group of 11 years which constituted only 3%.

Table no 2: Description of sample as per gender

Gender	Frequency	Percentage
Female	38	38
Male	62	62
Total	100	100

Table 2 has divided the samples into two genders male and female. The highest percentage of the sample who participated in the study were male's with 62.0% and female's were only 38.0%.

Table no 3: Description of the sample based on father's education

Fathers education	Frequency	Percentage
Illiterate	2	2
Primary	40	40
Secondary	20	20
Higher secondary	29	29
Graduate	9	9
Total	100	100

Table 3 shows that many of the samples father was only of primary education with 40% and only 29% were higher secondary educated. An insignificant proportion was seen among the graduates and illiteracy with 9% and 2% respectively.

Table no 4: Description of the sample based on mother's education

Mother's education	Frequency	Percentage
Illiterate	5	5
Primary	37	37
Secondary	30	30
Higher secondary	18	18
Graduate &above	10	10
Total	100	100

Table 4 shows that many of the samples mothers were only of primary education with 37% and only 30% were secondary school educated. An insignificant proportion was seen among the graduates and illiteracy with 10% and 5% respectively.

Table no 5: Description of the sample based on their residence.

Residence	Frequency	Total
Rural	6	6%
Urban	94	94%
Total	100	100

Table 5 is categorized into two sections based on their residence whether they belong to the rural or urban locality. It is seen that the major percentage of the samples resided in urban area ie: 94% whereas only 6% belonged to a rural area.

Table no 6: Description of samples based on the type of family.

Family type	Frequency	Percentage
Nuclear family	64	64
Joint family	31	31
Extended family	5	5
Total	100	100

Table 6 has been divided into 3 sections like the nuclear family, joint family, and extended family. The highest percentage of samples came from a nuclear family with a percentage of 64%, and 31% of samples were from joint family and 5% from extended family.

Table no 7: Description of samples based on father's occupation

Fathers occupation	Frequency	Percentage
Private service	28	28
Government service	13	13
Business	28	28
Others	27	27
Work from home	4	4
Total	100	100

Table 7 highlights the distribution of the sample based on their father's occupation. The data shows that the occupation of fathers from the private sector and business shared the same percentage of 28% whereas 13% were from the government sector and only 4% worked from home.

Table no 8: Description of the sample based on the mother's occupation

Mother's Occupation	Frequency	Percentage
Private Service	9	9
Government Service	2	2
Business	3	3
Others	4	4
Work From Home	24	24
House Wife	58	58
Total	100	100

Table 8 displays the data based on the mother's occupation. Majority of the mothers were housewives with 58%, and 24% of the mothers worked from home. Private service and government service constituted 9% and 2% respectively.

Table no 9: Description of samples based on any previous information

Already heard about rta	Frequency	Percentage
Yes	79	79
No	21	21
Total	100	100

Table no 10: Description of the sample based on the sources of information on RTA

Sources	Frequency	Percentage
Parents	46	46
School	34	34
Friends	6	6
Others	4	4
Don't know	10	10
Total	100	100

Table 10 represents the various sources of information on RTA the samples received. It is seen that parents contributed to 46% of knowledge to their children whereas 34% received from school and a quarter of them did not have any sources. An insignificant proportion received information from friends and , i.e.;6% and 4% respectively.

Table no 11: Description based on the transportation of sample to school.

Travelling mode to school	Frequency	Percentage
With parents	33	33
By bus	48	48
With caretaker	7	7
Self	12	12
Total	100	100

Table 11 displays the mode of traveling of the sample to school. It has been categorized into four. It is seen that majority of the samples took the bus to school(48%) and 38% went to school with parents whereas 7% were dropped to school by caretaker and 12% came to school by themselves.

Section 2 – Analysis of knowledge in relation to road traffic accidents and it's first aid measures before and after the video-assisted teaching programme among the school children.

Table no 12: Analysis of the pre-test and post-test score using descriptive statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Total score - Pretest	100	2	17	10.47	3.249
Total score - Post test	100	6	17	14.69	2.364

In table 4.2.1 the pretest and posttest score was calculated using descriptive statistics. Therefore it is evident that there has been a significant increase in the post-test score after the video-assisted teaching. The pre-test means score was 10.47 which rose to 14.69 in the post-test.

Table no 13: Analysis of the pretest and post test score using inferential statistics

	Paired Differences					T	Df	Sig. (2-tailed)
	Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
				Lower	Upper			
Pair 1 Post test - Pre test	4.220	3.077	.308	3.610	4.830	13.716	99	.000

In table 4.2.2 inferential statistics known as the paired “t” test was used to calculate the significance. Since the calculated value is greater than the tabulated value H1 is accepted and H0 is rejected.

Section 3 – Association of knowledge about road traffic accidents and it's first aid measures before and after the video-assisted teaching programme among the school children with a selected demographic variable.

Table no 14: Association of knowledge with the demographic variables.

		Status		Total	Chi-square p-value
		Not Improved	Improved		
Age (in Yrs.)	8 Yrs	1	9	10	
	9 Yrs	4	36	40	
	10 Yrs	4	43	47	NS
	11 Yrs	1	2	3	
Total		10	90	100	
Gender	Male	7	55	62	
	Female	3	35	38	NS
Total		10	90	100	
Fathers' Education	Illiterate	2	0	2	
	Primary	2	38	40	
	Secondary	1	19	20	0.000
	Higher Secondary	4	25	29	
	Graduate & above	1	8	9	
Total		10	90	100	
Mother's Education	Illiterate	2	3	5	
	Primary	2	35	37	
	Secondary	2	28	30	0.035
	Higher Secondary	4	14	18	
	Graduate & above	0	10	10	
Total		10	90	100	
Place of Residence	Urban	10	84	94	
	Rural	0	6	6	NS
Total		10	90	100	
Type of Family	Nuclear Family	7	57	64	
	Joint Family	3	28	31	NS
	Extended Family	0	5	5	
Total		10	90	100	

		Status		Total	Chi-square p-value
		Not Improved	Not Improved		
Father's Occupation	Private Service	4	24	28	
	Government Service	1	12	13	
	Business	5	23	28	NS
	Others	0	27	27	
	Work from home	0	4	4	
Total		10	90	100	
Mother's Occupation	Private Sector	0	9	9	
	Government Service	0	2	2	
	Business	0	3	3	
	Others	0	4	4	NS
	Work from home	3	21	24	
	Housewife	7	51	58	
Total		10	90	100	
Aware	Yes	9	70	79	
	No	1	20	21	NS
Total		10	90	100	
Source	Parents	2	44	46	
	School	5	29	34	
	Friends	2	4	6	
	Others	0	4	4	NS
	Don't Know	1	9	10	
Total		10	90	100	
Mode of transport to school	With Parents	2	31	33	
	By bus	5	43	48	
	With Care Taker	1	6	7	NS
	By Self	2	10	12	
Total		10	90	100	

From the above table 14, its observed that mother's education is significantly associated with the knowledge of the sample as the "p" value is 0.035 which is greater than 0.000. Therefore the alternative hypothesis H2 is accepted which states that there is a significant association between socio-demographic variables and the level of knowledge regarding road traffic accidents and related first aid measures among school children (Table no 1-14).

4. Discussion

In the present study, the first objective of the study was to assess and compare the knowledge of schoolchildren before and after video-assisted teaching regarding road traffic accidents and related first aid measures.

The level of knowledge score of the pretest and posttest were calculated using descriptive statistics. Therefore, it is evident that there has been a significant increase in the post-test score after the video-assisted teaching. The pre-test means score was 10.47, which rose to 14.69 in the post-test. Inferential statistics known as the paired "t" test was used to calculate the significance. Since the calculated value is greater than the tabulated value H1 is accepted which states that "There will be a significant difference in the level of knowledge regarding road traffic accidents and related first aid measures among school children before and after video-assisted teaching programme" and H0 is rejected.

Ariya. S.Kurup, Prof. Hemavathy (2015) conducted a study to assess the effectiveness of video assisted teaching programme on knowledge regarding the benefits of outdoor play among school going children of Chhattisgarh. One group pre-test post-test design and Simple Random Sampling –lottery method was used to select 60 school going children, aged between 10-11 years. The major findings that in pre-test knowledge score revealed poor knowledge 41.67%, average 58.33%, mean is 11.23, SD 5.4, CV 48.09 while the post-test knowledge score has been increased to good 40% and 60% were excellent, mean 30.87, SD 1.56, CV 5.05. The t-test revealed 26.50 was found highly effective, i.e., video-assisted teaching programme was found highly effective in increasing the knowledge of the children regarding the benefits of outdoor play [15]

The second objective of the study was to find an association between the level of knowledge regarding road traffic accidents and related first aid measures and selected demographic variables.

As an association of selected baseline variables in relation to their knowledge was studied using a chi-square test. It revealed that mother's education is significantly associated with the knowledge of the sample as the "p" value is 0.035, which is greater than father's education value i.e.0.000. Therefore, the alternative hypothesis H2 is accepted which states that there is a significant association between sociodemographic variables and the level of knowledge

regarding road traffic accidents and related first aid measures among schoolchildren.

Thamarai Selvi P (2013), conducted a study to assess the knowledge regarding the prevention of road traffic accidents among adolescents. 60 samples were selected using Probability Simple Random Sampling technique, in that lottery method was used. Collected data were analyzed through descriptive and analytical statistics. The findings revealed the post-test mean knowledge score was found higher (81.1%) when compared with post-test mean knowledge score (47.3%). The pre-test means knowledge score is 17.98 and the standard deviation is 3.74. Post-test mean knowledge is found to be 30.80, and the standard deviation is 3.30. Enhancement is 33.7%, and statistical paired‘t’ test value is 28.12. The statistical paired ‘t' test indicates that enhancement in the mean knowledge score found to be significant at 5% level for all aspects under study [12].

Conclusion

The present study assessed the effectiveness of video assisted teaching programme on knowledge regarding road traffic accidents and related first aid measures among school children in selected schools of Navi Mumbai. Based on the statistical findings it is evident that the knowledge has increased since the video-assisted teaching programme. The investigator had an enriching experience throughout the entire process of the research study.

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