

An Evaluation of the Effectiveness of a Self-Instructional Module on First Aid and Safety Measures for School Children (Aged 11–14 years) at PDR VVP Vidyalaya, Loni

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Abstract

Background: School children are active youngsters. India is home to nearly 500 million young individuals, with approximately 370 million being children under 15 years old, highlighting their crucial role as the future of the country. Young children often exhibit naughty, defiant, and impulsive behavior. According to the World Health Organization's Global report, in the South-East Asia Region, road traffic accidents, drowning, burns, and other injuries are leading causes of child mortality. In India, however, school health programs rarely emphasize first-aid training in their curriculum. Many injuries and health issues faced by schoolchildren are preventable with proper first-aid or emergency care, which can help reduce long-term disabilities among children. **Material and Methods:** A quantitative, evaluative approach using a pre-experimental single-group pretest-posttest research design was employed to assess the effectiveness of a self-instructional module on first aid and safety measures among 11–14-year-old school children at PDR VVP Vidyalaya in Loni. The sample comprised 50 children selected through simple random sampling. Knowledge levels before and after the intervention were measured using a structured questionnaire, and data analysis included descriptive statistics (frequency, percentage, mean, standard deviation) as well as inferential statistics (paired t-test, chi-square analysis) to interpret the results. **Results:** The pretest level of knowledge among school children concludes that majority of the children 30 (60%) were having average knowledge, 10 (20%) were having poor knowledge, 09 (18%) were having good knowledge and 01 (2%) was having excellent knowledge. Whereas, in the posttest level, 33 (66%) were having good knowledge, 14 (28%) were having excellent knowledge, 02 (4%) were having average knowledge and 01 (2%) was having poor knowledge. The mean pretest score was 7.88 ± 1.64 whereas the mean posttest score was 13.64 ± 1.32 . The mean difference was found out to be 5.78 and the calculated 't' value was found to be 9.552 at level of significance ($\alpha \leq 0.05$, with 'p' value 0.0001* which is highly significant concluding that the self-instructional module was found to be effective in improving knowledge of school children regarding first aid and safety measures and there was no any significant association of posttest knowledge scores of school children regarding first aid and safety measures with demographic variables such as age, gender, religion, type of family, dietary pattern, source of information, father's educational status, mother's educational status and monthly family income. **Conclusion:** The main conclusion of the current study stated that self-instructional module was effective in improving knowledge of school children regarding first aid and safety measures.

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INTRODUCTION

“Children do learn what they live, then they grow up to live what they've learned.”

—Dorothy Nolte

Children are energetic and vibrant individuals. They represent the future of every nation, and societies prioritize their well-being and safety. In India, there are nearly 500 million young individuals, with approximately 370 million being children under 15 years old. It is natural for all young children to occasionally exhibit playful, challenging, and impulsive behavior. Their daily lives are centered around their households, educational institutions, and local communities. Therefore, ensuring the safety of these environments: home, school, and community, is paramount as they pose the greatest risks to children's health [1]. First aid is the immediate support or care given to an individual who has experienced an injury or sudden illness until professional medical assistance is available. This can include using available resources and materials on-site. The primary goals of first aid are to save lives, prevent the condition from worsening, aid in recovery, and facilitate safe transportation to the nearest healthcare facility [2]. Henry Sigerist, a historian of medicine, stressed that public health should be a shared responsibility of the entire community. He stressed the need for active engagement and planning by the populace itself in striving for health. Sigerist argued that the battle against disease and promotion of health requires the continuous mobilization of the entire population, not solely the efforts of physicians [3]. In India, school health programs place minimal focus on first-aid training within the educational curriculum. In contrast, in developed nations such as the United Kingdom, first aid is more frequently included in the school health curriculum. Many injuries and health issues among schoolchildren are accidental yet preventable with timely first aid or emergency care, which can help minimize long-term disabilities. Understanding first aid, crucial for providing immediate care in emergencies, is essential for individuals of all ages. India, the world's second most populous country, had a population of 1.3 billion according to the 2011 census, with approximately 13.1% of its population aged between 0 and 6 years. Childhood injuries represent a significant global public health challenge. In 2011, the World Health Organization (WHO) estimated that injuries were responsible for the deaths of more than 630,000 children worldwide. In many nations, injuries become the leading cause of death once children surpass their first year. According to the WHO's Global report, in the South-East Asia Region, road traffic accidents, drowning, burns, and other injuries are the top causes of death among children. The mortality rates for these major causes of child injury are 7.4% for road traffic accidents, 6% for drowning, 6.1% for burns, and 2.7% for falls. The impact of accidents significantly hampers children's physical development, health, education, and future prospects. Therefore, it is crucial to safeguard children's lives by ensuring a safer environment. The WHO also reports that road traffic accidents are the second leading cause of death among individuals aged 5 to 29 years, with nearly 40 young people under the age of 25 years dying in road accidents every hour worldwide [4–7].

NEED FOR THE STUDY

Childhood injuries represent a major global public health issue, having a particularly profound effect on low- and middle-income countries compared to wealthier nations. A joint study by The United Nations Children's Fund (UNICEF) and the Alliance for Safe Children across five South and East Asian countries: Bangladesh, China, the Philippines, Thailand, and Vietnam, found that for every child under 18 years who dies from an injury, 12 others either require hospitalization or suffer permanent disabilities, while 34 children need medical attention or miss school or work. The consequences of childhood injuries can be especially devastating for children and their families, particularly those from disadvantaged socioeconomic backgrounds [8].

OBJECTIVES

- To assess the existing understanding of first aid and safety practices among schoolchildren.
- To evaluate the effect of a self-instructional module on improving schoolchildren's knowledge of first aid and safety measures.
- To explore the correlation between schoolchildren's posttest knowledge levels and their demographic characteristics.

OPERATIONAL DEFINITIONS

- *Evaluate*: This study involves the statistical analysis of how a self-instructional module influences the first aid and safety knowledge levels of schoolchildren.

- *Effectiveness*: It refers to the extent of the change observed in the knowledge scores of schoolchildren after the implementation of the self-instructional module on first aid and safety measures, as indicated by a significant difference between the pretest and posttest results.
- *Self-instructional module*: In the current study, it refers to the instructional activities related to first aid and safety measures for various problems among school children.
- *Knowledge*: In this study, it pertains to the feedback and information provided by school children concerning first aid and safety measures.
- *Safety measures*: A tool, method, or mechanism designed to lower the chances or risks of injury, harm, or damage to people, property, or the environment.
- *School children*: In the current study, it refers to the children who are going to school within 11–14 years of age group.

HYPOTHESIS

- *H1*: A significant difference exists between the pretest and posttest knowledge scores related to first aid and safety measures among schoolchildren.
- *H2*: A significant relationship exists between the posttest scores and the selected demographic variables.

DELIMITATIONS OF THE STUDY

- The study focuses on schoolchildren aged 11 to 14 years.
- The research is conducted at PDR VVP Vidyalaya in Loni.
- The sample size is restricted to 50 participants.
- The study is conducted over a period of 6 weeks.

METHODOLOGY

Research Approach

In the current study, in order to achieve the objectives of the study, quantitative, evaluative approach was taken into consideration.

Research Design

In the current study, pre-experimental one group pretest-posttest research design group was taken into consideration.

Setting of the Study

The present study was conducted at PDR VVP Vidyalaya in Loni.

Population

The target population of this study consists of schoolchildren from PDR VVP Vidyalaya in Loni.

Target Population

The target population for this study includes schoolchildren aged 11 to 14 years from PDR VVP Vidyalaya in Loni.

Accessible Population

The accessible population for this study included school children aged 11 to 14 years from PDR VVP Vidyalaya in Loni, who were present during the study period.

Sample and Sampling Technique

Sample

In present study, the samples were school children of 11–14 years of age group in PDR VVP Vidyalaya, Loni fulfilling sample selection criteria.

Sampling Technique

In this study, a simple random sampling method was employed.

Sample Size

The sample size in this study consisted of 50 participants.

Sampling Criteria

The present study established the following inclusion and exclusion criteria:

1. *Inclusion criteria:* School children who were:
 - i. In age group of 11–14 years.
 - ii. Willing to participate and will be available during period of data collection.
 - iii. Able to understand English, Marathi and Hindi.
 - iv. Will provide consent for participation in the study.
2. *Exclusion criteria:* School children who were:
 - i. Absent during the period of data collection.
 - ii. Sick during the period of study.
 - iii. Want to withdraw from the study at any point of time.
 - iv. Participated in the pilot study.

Tool Preparation

The data collection tool was constructed by the investigators in the light of literature reviewed and their experience in the clinical field to ensure the adequacy, relevancy and question organization, validity of content and measurable too.

Description of Tool

The tool consisted of two parts.

1. *Part I: The part I comprises of two sections:*
 - i. *Section A:* The demographic data include age, family income, type of family, family size, religion, place of residence, food habit, parent education and parent's occupation status, on first aid and safety measures among school children.
 - ii. *Section B:* Structured knowledge questionnaire. It consists of 20 structured questionnaires regarding first aid and safety measures.
2. *Part II: Self-instructional module regarding first aid and safety measures.*

ANALYSIS AND INTERPRETATION

Pretest and Posttest Level of Knowledge of First Aid and Safety Measures Among School Children

The study aims to assess the impact of a first aid and safety measures education program by comparing school children's knowledge before and after the intervention through pretest and posttest evaluations. This approach will help measure the effectiveness of the program in enhancing their understanding of basic first aid and safety practices (Tables 1–5).

DISCUSSION

Findings Related to Socio Demographic Characteristics of School Children

The demographic analysis reveals that the majority of the schoolchildren (28 or 56%) were aged between 12 and 13 years, with an equal percentage of 28 (56%) being male. A significant portion, 32 (64%), identified as Hindu, while 32 (64%) came from nuclear families. Regarding dietary habits, 23 (46%) followed a mixed diet. The main sources of information were friends and family for 18 (36%) of the children. In terms of parental education, 19 (38%) of the fathers had secondary or higher secondary education, and 18 (36%) of the mothers had the same level of education. Additionally, 25 (50%) of the families reported a monthly income between Rs. 5001 and 10,000 [9].

Table 1. Frequency and percentage wise distribution of pretest level of knowledge regarding first aid and safety measures among school children (N=50).

S.N.	Level of knowledge	Pretest				
		Frequency (f)	Percentage (%)	Mean	S.D.	Mean %
1.	Poor	10	20	7.88	±1.64	49.3
2.	Average	30	60			
3.	Good	09	18			
4.	Excellent	01	2			

Table 2. Frequency and percentage wise distribution of posttest level of knowledge regarding first aid and safety measures among school children (N=50).

S.N.	Level of knowledge	Posttest				
		Frequency (f)	Percentage (%)	Mean	S.D.	Mean %
1.	Poor	01	2	13.64	±1.32	71.2
2.	Average	02	4			
3.	Good	33	66			
4.	Excellent	14	28			

Table 3. Mean, standard deviation, mean difference and difference in mean percentage of pretest and posttest level of knowledge regarding first aid and safety measures among school children (N=50).

	Pretest		Posttest		Mean difference	Difference in mean %
	Mean	S.D.	Mean	S.D.	5.78	21.9
Overall	7.88	±1.64	13.64	±1.32		

Table 4. Paired ‘t’ test to evaluate the effectiveness of self-instructional module on pretest and posttest knowledge of school children regarding first aid and safety measures (N=50).

	Mean	S.D.	Mean difference	‘t’ test value	P value
Posttest	13.64	±1.32	5.78	9.552	0.0001*
Pretest	7.88	±1.64			

Table 5. Chi square analysis to find out Association between posttest level of knowledge among school children with selected demographic variables (N=50).

S.N.	Demographic variables	Chi square value	Df	P value	Significance
1.	Age	1.52	4	0.958	Not significant
2.	Gender	2.11	4	0.715	Not significant
3.	Religion	3.95	6	0.684	Not significant
4.	Type of family	1.87	4	0.759	Not significant
5.	Dietary pattern	1.69	4	0.792	Not significant
6.	Source of information	6.52	6	0.367	Not significant
7.	Father’s educational status	5.27	6	0.509	Not significant
8.	Mother’s educational status	4.38	6	0.625	Not significant
9.	Family monthly income	2.49	4	0.646	Not significant

Findings Related to Pretest and Posttest Level of Knowledge Regarding First Aid and Safety Measures Among School Children

The pretest level of knowledge among school children regarding first aid and safety measures which concludes that majority of the children 30 (60%) were having average knowledge, 10 (20%) were having poor knowledge, 09 (18%) were having good knowledge and 01 (2%) was having excellent knowledge.

Whereas, the posttest level of knowledge among school children regarding first aid and safety measures which concludes that majority of the children 33 (66%) were having good knowledge, 14 (28%) were having excellent knowledge, 02 (4%) were having average knowledge and 01 (2%) was having poor knowledge. The mean pretest score was 7.88 ± 1.64 whereas the mean posttest score was 13.64 ± 1.32 .

Findings Related Effectiveness of Self-instructional Module on Pretest and Posttest knowledge of School Children Regarding First Aid and Safety Measures

The average pretest score was 7.88 ± 1.64 , while the average posttest score was 13.64 ± 1.32 . The mean difference was found out to be 5.78 and the calculated 't' value was found to be 9.552 at level of significance ($\alpha \leq 0.05$, with 'p' value 0.0001* which is highly significant concluding that the self-instructional module was found to be effective in improving knowledge of school children regarding first aid and safety measures.

Findings Related to Association Between Posttest Level of Knowledge Among School Children with Selected Demographic Variables

The analysis of posttest knowledge scores among school children regarding first aid and safety measures found no significant associations with various demographic variables including age, gender, religion, family type, dietary habits, sources of information, father's education, mother's education, and monthly family income [10].

CONCLUSION

The main conclusion of the study reveals that the self-instructional module effectively improved school children's understanding of first aid and safety measures. There was a significant improvement in the knowledge of the school children which will be helpful for them and the society to provide awareness regarding importance of first aid and safety measures.

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