RESEARCH PAPER

A STUDY TO ASSESS THE EFFECTIVENESS OF STRUCTURED TEACHING PROGRAM ON KNOWLEDGE AND PRACTICE REGARDING FIRST AID MANAGEMENT OF SELECTED MINOR INJURIES AMONG SCHOOL CHILDREN IN SELECTED SCHOOLS, BANGALORE

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Abstract

First aid instruction should be required for all school-age children since it not only gives them important life skills but also builds confidence, good communication, and collaboration. The main objectives of first aid are to save a person's life and stop their condition from growing worse until medical assistance comes. It's a quick, simple, and quick operation that requires little to no medical equipment to be carried out outside of a hospital. All students, starting in the first grade, should get first aid training. The current imperative is to impart scientific information to children. The most valuable resource in the country is its students; by providing them with the proper first aid and emergency management training, we can enable them to respond in an emergency and positively impact the community. Professionals in the medical and non-medical fields alike must have first aid training. If first aid is given appropriately within two hours, it can save a priceless human life. Injuries are the primary cause of death in the first half of life. The study's population consisted of students aged 7 to 14 who were enrolled in particular schools in Bangalore. The researcher used a straightforward random sampling procedure to choose 300 samples. Based on the findings of this study, it was determined that the structured teaching package was helpful in providing first aid and managing a variety of minor injuries.

Keywords: First Aid, School-Age Children, Structured Teaching Package, Emergency Management, Minor Injuries, First Aid Training, Life-Saving Skills, Scientific Knowledge, Student Education.

How to cite this article: Varughese J. A Study To Assess The Effectiveness of Structured Teaching Program on Knowledge and Practice Regarding First Aid Management of Selected Minor Injuries Among School Children in Selected Schools, Bangalore. Int J Drug Deliv Technol. 2026;16(53s): 323-349. DOI: 10.25258/ijddt.16.53s.36

Source of support: Nil.

Conflict of interest: None.

Introduction

First aid and emergency care are fundamental components of healthcare that play an important role in preserving life, reducing complications, and promoting recovery during emergencies occurring in homes, schools, workplaces, and communities (Kleinman et al., 2018). Burns are among the most common household and accidental injuries requiring immediate intervention, and appropriate first aid such as cooling the affected area with running water, removing restrictive clothing, and preventing infection can significantly reduce tissue damage and pain (American Burn Association, 2018). Sunburn and heatstroke are also common environmental emergencies resulting from excessive heat exposure and require rapid cooling measures, hydration, and transportation to healthcare facilities when symptoms worsen (Casa et al., 2015). Drowning remains a leading cause of accidental death worldwide, especially among children, and early rescue, airway maintenance, rescue breathing, and cardiopulmonary resuscitation are essential for survival and neurological recovery (Szpilman et al., 2018). Road traffic accidents and injuries contribute substantially to mortality and disability, and first aid management involving bleeding control, immobilization, airway maintenance, and rapid transportation can improve patient outcomes significantly (World Health Organization, 2018). Poisoning caused by chemicals, medicines, food contamination, or toxic substances represents another major emergency where identification of poison, maintenance of airway and breathing, reassurance, and immediate medical referral are necessary to prevent organ failure and death (Thanacoody and Thomas, 2019). Food poisoning commonly presents with vomiting, diarrhea, abdominal pain, and dehydration, and first aid management primarily focuses on hydration, rest, and prompt medical consultation when symptoms persist or worsen (Kirk et al., 2017). Snake bites are medical emergencies in many rural and tropical regions, and immediate immobilization of the affected limb, reassurance, wound cleaning, and rapid transportation to a medical facility for antivenom therapy are recommended interventions (Longbottom et al., 2018). Insect stings and animal

bites may produce allergic reactions, swelling, pain, and infections, and therefore cleaning the wound, cold compress application, and medical evaluation are important aspects of care (Golden et al., 2017). Heart attack or myocardial infarction requires urgent recognition of symptoms such as chest pain, breathlessness, and sweating, followed by emergency services activation and cardiopulmonary resuscitation if the person becomes unconscious (Ibanez et al., 2018). Choking is another life-threatening emergency that blocks airflow to the lungs and may be relieved through coughing encouragement, back blows, abdominal thrusts, and airway clearance techniques (Perkins et al., 2021). Epileptic seizures demand protection of the victim from injury, maintenance of airway safety, avoidance of forceful restraint, and reassurance until recovery occurs naturally (Fisher et al., 2017). Foreign bodies in the eyes, ears, or nose are frequent among children and should be managed carefully without causing further trauma while seeking medical assistance when required (Mason et al., 2019). Fainting and shock are conditions associated with temporary reduction in blood flow to the brain or organs, and management includes positioning the victim comfortably, elevating the legs, maintaining warmth, loosening tight clothing, and observing vital signs carefully (Tintinalli et al., 2020). Strangulation and hanging emergencies require immediate airway management, removal of constricting materials, rescue breathing, and emergency referral because oxygen deprivation can rapidly lead to death or brain damage (Byard, 2019). Asthma attacks are characterized by narrowing of the airways causing breathing difficulty, and first aid includes reassurance, upright positioning, and assistance with inhaler administration to relieve symptoms (Global Initiative for Asthma, 2022). Back pain, headaches, cramps, fever, allergies, and minor illnesses also benefit from simple supportive first aid measures such as rest, hydration, positioning, cold compresses, pain relief medications, and monitoring of symptoms (Hoffman and Sullivan, 2017). The effectiveness of planned teaching programs regarding first aid management among primary school teachers has become increasingly important because teachers are often the first individuals to respond to emergencies occurring in schools (Bakke et al., 2017). Studies indicate that school children frequently experience injuries such as falls, fractures, burns, cuts, choking, fainting, and allergic reactions during school activities, making teachers' preparedness essential for child safety (Devkota et al., 2020). Structured educational interventions significantly improve teachers' knowledge, attitudes, confidence, and practical skills in handling emergencies and preventing complications before professional help arrives (AlYahya et al., 2019). Teachers trained in first aid can effectively manage common school emergencies including fractures, bleeding, burns, choking, seizures, and asthma attacks while simultaneously reducing panic among students (Joseph et al., 2015). First aid education also contributes to safer school environments by promoting prevention strategies, rapid response systems, and awareness regarding injury risks and emergency preparedness (Banfai et al., 2017). Furthermore, school staff trained in first aid become more confident and proactive in recognizing warning signs of severe conditions and initiating timely referrals for medical treatment (Li et al., 2021). The inclusion of first aid education in teacher training programs enhances the quality of school health services and ensures that children receive immediate care during critical situations (Eze et al., 2020). Research has demonstrated that educational workshops, demonstrations, simulation-based learning, and refresher courses improve retention of first aid knowledge and emergency management skills among educators (Mpotos et al., 2021). Therefore, first aid training should be considered a mandatory component for all teachers and school personnel because it improves safety, strengthens emergency response capacity, prevents disability and mortality, and promotes a healthy and secure educational environment for children and adolescents (Semeraro et al., 2021).

Need of the Study

School children are highly vulnerable to accidents and injuries such as burns, fractures, sprains, epilepsy, bleeding, and nose injuries because of their active, curious, and impulsive behavior during school and recreational activities (Bakke et al., 2017). First aid education among students and teachers is essential because timely and appropriate intervention can prevent complications, reduce disability, and save lives during emergencies occurring in school settings (Semeraro et al., 2021). Studies conducted in India and other developing countries indicate that accidental injuries remain one of the leading causes of morbidity and mortality among school-aged children, emphasizing the importance of emergency preparedness and safety awareness programs in educational institutions (World Health Organization, 2018). Effective first aid management of bleeding, fractures, sprains, and dislocations using techniques such as immobilization, elevation, compression, and wound care significantly improves recovery outcomes and minimizes long-term complications (Pellegrino et al., 2021). Epilepsy and recurrent nosebleeds are also common conditions in children requiring immediate support and knowledgeable management by teachers and school personnel (Al Hashimi et al., 2019). Research findings demonstrate that structured teaching programs enhance first aid knowledge, confidence, and practical response skills

among teachers and students, enabling them to manage school emergencies more effectively (Mpotos et al., 2021). Therefore, integrating first aid training into school health education can strengthen safety practices, improve emergency response capacity, and promote a healthier and more secure learning environment for children and adolescents (Devkota et al., 2020).

Objective of the Study

- To evaluate schoolchildren's prior and post-intervention knowledge of first aid care for certain minor ailments.
- To evaluate, both before and after the intervention, the procedures used to treat certain minor injuries in schoolchildren using first aid.
- To assess how well school children understand and use first aid for certain small injuries as a result of an organized instruction program.
- To determine the relationship between a student's knowledge and practice score and a few chosen demographic factors.

Hypothesis

- H1: There is a significant difference in schoolchildren's knowledge regarding first aid management of selected minor injuries before and after the intervention at $p \leq 0.05$ level.
- H0: There is no significant difference in schoolchildren's knowledge regarding first aid management of selected minor injuries before and after the intervention at $p \leq 0.05$ level.
- H2: There is a significant difference in schoolchildren's practice regarding first aid management of selected minor injuries before and after the intervention at $p \leq 0.05$ level.
- H0: There is no significant difference in schoolchildren's practice regarding first aid management of selected minor injuries before and after the intervention at $p \leq 0.05$ level.
- H3: There is a significant association between schoolchildren's knowledge regarding first aid management of selected minor injuries and their selected demographic variables at $p \leq 0.05$ level.
- H0: There is no significant association between schoolchildren's knowledge regarding first aid management of selected minor injuries and their selected demographic variables at $p \leq 0.05$ level.
- H4: There is a significant association between schoolchildren's practice regarding first aid management of selected minor injuries and their selected demographic variables at $p \leq 0.05$ level.
- H0: There is no significant association between schoolchildren's practice regarding first aid management of selected minor injuries and their selected demographic variables at $p \leq 0.05$ level.

Scope of the Study

The primary goal of the current study is to evaluate how well schoolchildren enrolled in particular schools are taught organized first aid and minor injury management skills. Population have been selected in this study is school children aged 7 -14 years. Dependent variables such as knowledge would be modified using independent variable like structured teaching programme.

Problem Statement

School-age children are highly vulnerable to minor injuries such as falls, wounds, fractures, bleeding, and foreign body accidents during school activities, highlighting the need to improve their knowledge and practice regarding first aid management for prevention of complications and promotion of safety.

Review of Literature

School accidents and minor injuries among children remain a significant public health concern because school-age children are highly active and vulnerable to fractures, wounds, burns, epistaxis, sprains, dislocations, choking, and epilepsy-related emergencies, requiring immediate and appropriate first aid management to prevent complications and improve recovery outcomes (Alenezi et al., 2024). Studies have shown that first aid education improves children's and teachers' preparedness in handling emergency situations and promotes positive attitudes toward safety and injury prevention in schools (Semwal et al., 2023). Sports participation among adolescents has been associated with a high prevalence of fractures, sprains, and dislocations, highlighting the importance of early injury assessment and management in school settings (Leipman et al., 2023). Contact sports especially contribute to increased musculoskeletal injuries among schoolchildren and adolescents, requiring trained first responders within educational institutions (Braaten et al., 2023). Joint dislocations and fracture-related emergencies are considered orthopedic emergencies and require prompt stabilization and referral to avoid long-term disability and complications (Salaria et al., 2023). Teachers and school staff play a crucial role in managing health emergencies because they are often the first individuals present during accidents

occurring in schools and playgrounds (Kumar et al., 2023). Severe bleeding remains one of the leading preventable causes of trauma-related deaths, and rapid first aid interventions such as direct pressure and hemorrhage control significantly improve survival outcomes (Palmer & Lee, 2022). Fracture-dislocations of the ankle and related musculoskeletal injuries frequently result from high-energy trauma and require immediate immobilization and emergency care (Cao et al., 2022). Epistaxis is one of the most common emergencies among school-age children, and proper first aid measures such as nasal compression and positioning are essential for effective management (Bychkova, 2022). Epilepsy and seizure disorders also require immediate first aid support and awareness because improper handling can increase morbidity and negatively affect the child's quality of life (Natu et al., 2022). Research findings have revealed inadequate awareness and insufficient practical skills related to first aid management among teachers, students, and community members, despite positive attitudes toward learning first aid practices (Merdad et al., 2022). Early recognition and management of emergencies, including bleeding, choking, fractures, and epilepsy, are therefore essential components of school health programs and safety education (Althaus et al., 2021). Studies among drivers and non-medical populations also indicate that practical first aid training significantly improves emergency response capabilities and confidence during accidents (Eberendu, 2021). Ankle fracture dislocations and sports-related trauma continue to affect adolescents and young adults, emphasizing the need for preventive education and immediate first aid intervention in schools and sports environments (Yaradılmış, 2020). Evidence-based guidelines recommend that all individuals responsible for child supervision should be trained in bleeding control, immobilization, choking management, seizure care, and emergency referral systems to reduce injury-related morbidity and mortality among children (Tunkel et al., 2020).

Unintentional Injuries Among Children - An Overview

Unintentional injuries among children represent a major global public health concern and continue to contribute significantly to childhood mortality, morbidity, disability, and psychological trauma, particularly in Low and Middle Income Countries where nearly 95% of injury-related deaths occur due to poor surveillance systems, unsafe environments, inadequate preventive strategies, and limited emergency healthcare services (World Health Organization, 2019). Childhood is considered the most crucial phase of human growth and development because it shapes the physical, emotional, social, and cognitive foundations of future life, yet millions of children across the world are exposed to preventable injuries within homes, schools, playgrounds, roads, and communities every day (UNICEF, 2020). Children are naturally curious, adventurous, and developmentally immature, making them more vulnerable to injuries because they often lack risk perception, judgment, coordination, and safety awareness during exploration of their surroundings (Sleet et al., 2018). Physiological characteristics such as smaller body size, thin skin, immature motor skills, poor auditory and visual abilities, and underdeveloped cognitive responses further increase the susceptibility of children to burns, poisoning, drowning, falls, and road traffic injuries (Hyder et al., 2017). Globally, road traffic injuries remain one of the leading causes of death among children and adolescents, especially among pedestrians and bicyclists in developing countries where traffic congestion, lack of protective infrastructure, and poor enforcement of road safety laws continue to endanger children's lives (Global Burden of Disease Study, 2021). Drowning is another major cause of childhood mortality in rural and semi-urban communities because of open water bodies, uncovered tanks, unsafe storage of water, and inadequate supervision of children near ponds, rivers, and swimming areas (Tyebally et al., 2022). Burns and scalds continue to affect children living in overcrowded households where open cooking systems, kerosene stoves, unsafe electrical equipment, and storage of hot liquids increase the risk of severe injuries and lifelong disabilities (Peck et al., 2019). Poisoning incidents among children have also increased due to easy accessibility of pesticides, insecticides, cleaning chemicals, medicines, cosmetics, paint products, and household toxic substances stored without safety precautions (Mowry et al., 2020). Falls are among the most common causes of nonfatal childhood injuries and often occur because of slippery floors, unsafe staircases, lack of protective railings, uneven playground surfaces, and absence of supervision during play activities (Peden et al., 2018). Studies have shown that boys generally experience higher rates of injuries due to greater outdoor exposure and risk-taking behaviour, whereas girls are more vulnerable to domestic burns and injuries because of early involvement in household activities such as cooking and childcare responsibilities (Rahman et al., 2021). In India, unintentional injuries among children remain underreported because many injury events never reach hospitals, particularly in rural and underserved communities where access to healthcare facilities and emergency transportation services is inadequate (Gururaj et al., 2019). Community-based studies have demonstrated that the true burden of childhood injuries is substantially greater than official hospital records because a large proportion of nonfatal injuries are treated at home or by informal healthcare providers without

documentation (Borse and Hyder, 2018). Researchers have emphasized that injuries are not random accidents but predictable and preventable events influenced by environmental, behavioural, social, and economic determinants that require evidence-based intervention strategies and policy implementation (World Health Organization, 2022). Mothers and caregivers play a critical role in preventing childhood injuries because they are the primary supervisors and decision-makers responsible for creating safe home environments, identifying hazards, and promoting protective behaviours among children (Ablewhite et al., 2015). However, many parents lack adequate knowledge regarding injury prevention measures, first aid management, supervision practices, and developmental risks associated with childhood exploration and mobility (Kendrick et al., 2017). Educational interventions using visual and self-instructional materials have shown positive effects in improving parental awareness, confidence, and safety practices related to child injury prevention (Watson et al., 2021). Effective injury prevention requires culturally appropriate, community-based, and age-specific interventions that address environmental safety, parental education, legislation, surveillance systems, and emergency healthcare preparedness simultaneously (WHO UNICEF, 2023). Furthermore, strengthening injury surveillance, promoting public awareness campaigns, improving urban planning, ensuring safer schools and homes, and integrating injury prevention into primary healthcare services are essential strategies to reduce the burden of childhood injuries in developing countries like India (Ministry of Health and Family Welfare India, 2021). Therefore, understanding the epidemiology, social determinants, and contextual patterns of unintentional injuries among children is essential for developing sustainable prevention strategies and ensuring the survival, safety, health, and overall well-being of future generations (Peden and Oyegbite, 2020).

Methodology

Research Approach

The present study adopted a quantitative experimental research approach to evaluate the effectiveness of a First Aid Intervention Programme among primary school students regarding awareness of first aid management during emergencies. Experimental research enables the investigator to examine cause-and-effect relationships by actively introducing interventions and measuring their outcomes systematically among participants (Polit and Beck, 2021). A one-group pre-test and post-test experimental design was utilized in the present investigation, where the pre-test assessment was represented as O1 and conducted before the implementation of the educational intervention to determine baseline awareness levels among school children (Creswell and Creswell, 2018).

Variables

The independent variable of the study was the First Aid Intervention Programme prepared by the investigator based on principles of emergency care and first aid management for common school-related injuries and accidents, while the dependent variable was the awareness level of primary school students regarding first aid practices and emergency responses (Sharma et al., 2020). Demographic variables such as age, gender, educational status, and class level were considered influencing variables, whereas environmental disturbances and exposure to mass media were considered extraneous variables affecting awareness outcomes (Kaur and Kaur, 2019).

Setting and Population of the Study

The research study was conducted in selected schools of Bangalore, Karnataka, among primary school students in order to assess their awareness and understanding related to first aid management during emergency situations occurring in school settings (Singh et al., 2022). The accessible population included all school-going children fulfilling the eligibility criteria and available during the period of data collection (Patel et al., 2018).

Sample Size and Sampling Technique

The sample consisted of 300 students selected from different schools through a non-probability convenient sampling technique, which allowed the investigator to select participants based on accessibility and willingness to participate in the study (Etikan and Bala, 2017). Inclusive criteria involved students who were present during data collection, willing to participate, and able to read and write English, while students absent during the study period, having sensory deprivation, or participating in the pilot study were excluded (Thomas et al., 2021).

Data Collection Tool

Data were collected using a structured questionnaire developed after extensive review of literature and expert consultation in pediatric nursing, consisting mainly of close-ended and Likert scale-based questions to assess knowledge, practices, attitudes, and awareness regarding first aid management

among school children (Bhandari and Sharma, 2023).

Pilot Study

A pilot study was conducted prior to the main investigation to assess the feasibility, reliability, and practicality of the research design and data collection instrument among school children in Bangalore, Karnataka (Polit and Beck, 2021). Approximately thirty students participated in the pilot study focusing on awareness and management of first aid emergencies among school-aged children through the use of a structured questionnaire assessing knowledge and practice related to first aid situations (Creswell and Creswell, 2018). The educational intervention was administered through an LCD-supported PowerPoint presentation along with simplified teaching materials related to emergency first aid management for children (Kaur et al., 2020). Findings from the pilot study revealed improvement in post-test knowledge and practice scores among the students, thereby confirming the effectiveness and applicability of the intervention programme for the larger study population (Thomas and Gupta, 2019). The successful completion of the pilot study encouraged the investigator to proceed with the main study involving a larger sample size and more extensive data collection procedures (Sharma and Singh, 2022).

Data Collection Procedure

Data collection is considered a systematic process of gathering relevant information for analysis, interpretation, and evidence-based conclusions in quantitative research studies (Patel et al., 2018). After obtaining formal administrative approval from concerned authorities and expert guidance, the researcher initiated data collection in selected schools over a period of six months among students fulfilling the inclusion criteria (Bhandari and Sharma, 2023). Verbal consent was obtained from the participants prior to data collection, and students were informed regarding the purpose, significance, and procedures of the study to ensure active participation and cooperation (Kumar et al., 2021). The intervention programme included PowerPoint presentations and informational booklets covering various aspects of first aid emergencies and management strategies among school children, with each educational session lasting approximately forty-five minutes (Singh et al., 2020). Students were divided into groups of fifteen for effective teaching and administration of questionnaires, and standardized procedures were maintained throughout all schools to ensure uniformity in data collection (Joseph and Mary, 2019).

Plan for Data Analysis

Collected data were systematically scored, consolidated, and analyzed using SPSS statistical software to derive meaningful interpretations and research findings (Field, 2018). Incomplete response sheets were excluded from analysis, and statistical techniques including Cohen's d were utilized to measure the effectiveness and magnitude of the educational intervention among the experimental group participants (Lakens, 2017).

Data Analysis and Interpretation

In which the data that was acquired from school students in Bangalore, Karnataka, addressing their knowledge and practice on chosen elements of first aid crises and the management of these situations. The data was collected from a variety of schools in Bangalore.

Section – A: Demographic Variables

Demographic Variables

Table 1 Distribution of Demographic Variables of School students (N = 300)

S. No.	Demographic Variables	Frequency (f)	Percentage (%)
1.	Age in years		
	a. 7-10 years	165	55.0
	b. 11-14 years	97	32.3
	c. > 14 years	38	12.7
2.	Sex		
	a. Male	125	41.7
	b. Female	175	58.3
3.	Educational Qualification		
	a. Lower primary class	177	59
	b. Upper primary class	123	41
4.	Type of school		
	a. Women	0	0
	b. Co education	300	100
5.	Religion		
	a. Hindu	134	44.7
	b. Christian	102	34
	c. Muslim	64	21.3

6.	Area of the residence a. Urban b. Rural	 179 121	 59.7 40.3
7.	Source of information a. no source b. mass Media c. Friends and family d. health Professional	 138 54 50 58	 46.0 18.0 16.7 19.3
8.	Presence of first aid box in your house a. yes b. No	 41 251	 13.7 86.3

Fifty-five percent of the participants were in the seven to ten age group, ninety-seven percent were in the eleven to fourteen age group, and twelve point seven percent were above fourteen years and beyond. Regarding the respondents' sex, 175 (58.3%) were female and 125 (41.7%) were male. With regards to education status of respondents, 177(59%) were lower primary classes and 123(41%) were upper primary classes. Regarding the types of school, all the respondents 300(100%) were belongs to coeducation school. About the religion of the respondents, 134 (44.7%) were Hindu, 102(34%) were Christian and 64(21.3%) were Muslims. Among the respondent 179(59.7%) belong to urban area of residence, and 121(40.3%) were belong to rural area. Based on the source of information regarding first aid 138(46%) didn't know about first aid, 54(18%) knew through mass media, 50(16.7%) knew through friends and family members and 58(19.3%) knew through health professionals. With regard of Presence of first aid box in respondents house 41(13.7%) had first aid box and 251(83.3%) were not having first aid box.

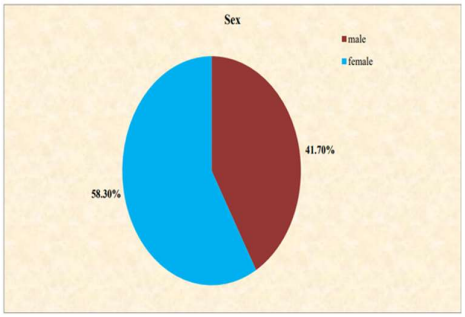

Figure 1: Percentage Distribution of Demographic Variables of School students According to Sex

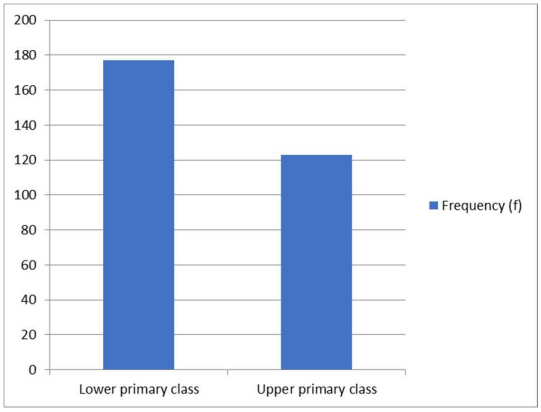

Figure 2: Percentage Distribution of Demographic Variables of School students According to their Educational Qualification

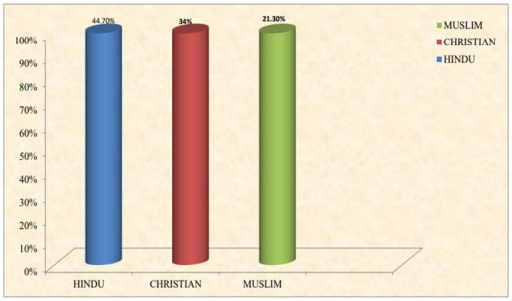

Figure 3: Percentage Distribution of Demographic Variables of School students According to their Religion

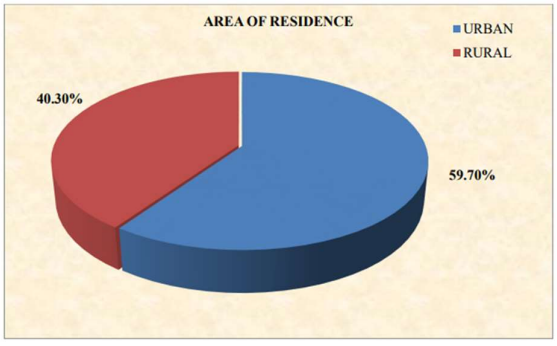

Figure 4: Percentage Distribution of Demographic Variables of School students According to their Area of Residence

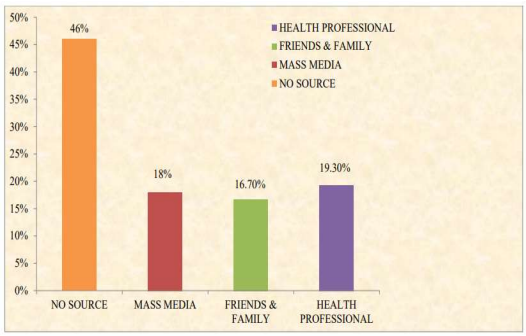

Figure 5: Percentage Distribution of Demographic Variables of School Students According to Source of Information

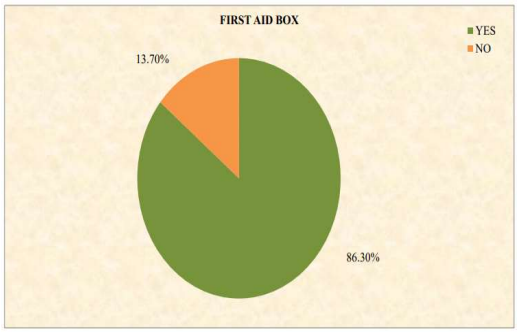

Figure 6: Percentage Distribution of Demographic Variables of School students According to Presence of First Aid Box in Home

Primary schools' teachers towards first aid of children: a step for injuries prevention

As may be shown in Table 5.2. There were a total of 300 persons who took part in the current study, with around 72.3% of them being married and 67.4% having children. Additionally, 79.9% of the participants claimed that they were provided with knowledge on first aid. Also, the average number of years spent working was 11.45±8.9.

Table 2: data and personal information of participants (n=300)

Factor	Category	n	%
Marital statues	Single	70	**23.4%**
	Married	217	**72.3%**
	Divorced	6	**2%**
	Widow	7	**2.3%**
Do you have children?	No	98	**32.6%**
	Yes	202	**67.4%**
Have you received any information on first aid?	No	60	**20.1%**
	Yes	240	**79.9%**
Years of experience (M±SD)		11.45±8.9	

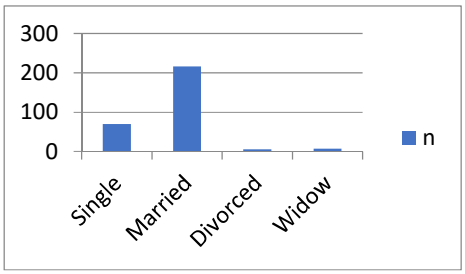

Figure 7: Marital status

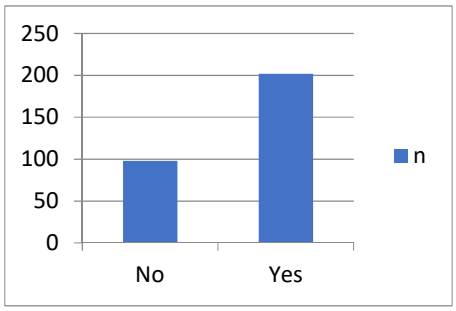

Figure 8: Do you have children?

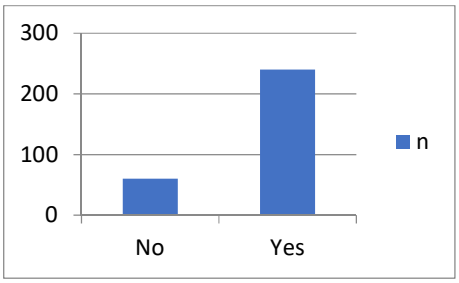

Figure 9: Have you received any information on first aid?

Yes, not sure, and no answers were used to test people's broad understanding of first aid, as Table (2) illustrates. The chi square test was used to ascertain whether or not there was a significant difference between the subjects. All of the general knowledge statements on first assistance showed a high degree of agreement (Yes); the percentages ranged from 97.7% to 87.6%, and the chi square (X2) values were significant. ($p<0.01$). As can be seen in Table (3), the knowledge was obtained from a variety of sources. The most popular sources were the internet and the experience, which accounted for

33.3% and 30.5% of the total, respectively. Following that, television and reading accounted for 14.9% and 14.3% of the total, respectively, while the source that was utilized the least was the training course, which accounted for 7.3% of the total.

Table 3: Sources of teachers' information (n=300)

Source	Responses	
	N	PERCENT
Experience	100	33.3%
Internet	91	30.5%
TV	45	14.9%
Reading	42	14.0%
Training course	22	7.3%
Total	**300**	**100.0%**

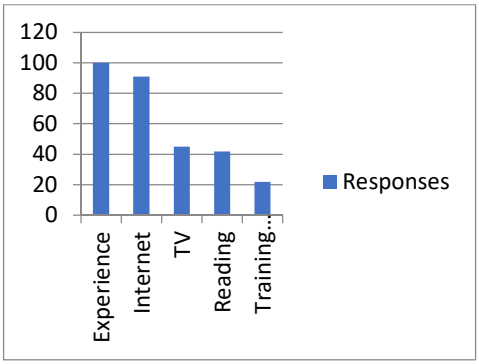

Figure 10: Sources of teachers' information

Descriptive analysis and chi square test of the General information about first aids

Yes, not sure, and no answers were used to test people's general knowledge of first aid, as shown in Table (4). The chi square test was used to ascertain whether or not there was a significant difference among the participants. The chi square (X2) values were significant ($p<0.01$) despite the fact that the percentages varied between 97.7% and 87.6%. Additionally, all of the statements on the general understanding of first aid were viewed as highly favorable (Yes).**Table 4: Descriptive analysis and chi square test of the General information about first aids (n=300)**

Statement	N/%	Yes	Not sure	No	X2	p
The main purpose of first aid is to preserve life?	N	293	4	3	13.05.68**	0.000
	%	97.7%	1.4%	0.9%		
Features of a good paramedic to be a good listener & calm	N	279	13	8	1127.23**	0.000
	%	93.1%	4.4%	2.4%		
Preventing accidents is the responsibility of paramedic	N	268	18	14	991.42**	0.000
	%	89.4%	6%	4.6%		
First aid is applied immediately to treat the injured child until medical help arrives	N	287	6	7	1220.18**	0.000
	%	95.6%	2.1%	2.3%		
When you are providing first aid, the first priority is given to life threatening case	N	263	23	14	927.60**	0.000
	%	87.6	7.7	4.7		
** significance at the 0.05 levl						

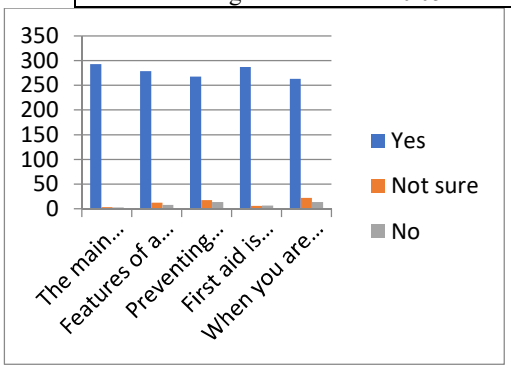

Figure 11: Descriptive analysis and chi square test of the General information about first aids

Descriptive analysis and chi square test of Wounds and Bleeding

As shown in Table (5), yes, not sure, and no response were used to gauge wounds and bleeding. After then, it was decided whether or not there was a significant difference between the participants using the chi square test. It was discovered that the chi square (X2) values were significant, the percentages ranged from 76.6% to 43.4%, and all of the claims about wounds and blood were highly reported (Yes). ($p<0.01$).

Table 5: Descriptive analysis and chi square test of Wounds and Bleeding (n=300)

Statement	N/ %	Yes	Not sure	No	X2	p
The main purpose of wound care is to prevent inflammation	N	230	27	43	591.99**	0.000
	%	76.6 %	9%	14.4 %		
The first procedure to control bleeding is through direct pressure on the wound	N	221	42	38	510.19**	0.000
	%	73.6 %	13.9 %	12.6 %		
The first step to cleaning the wound is to wash it with water	N	130	72	98	40.34**	0.000
	%	43.4 %	23.9 %	32.7 %		
Bleeding of falling tooth is the most common type of bleeding in school children	N	170	70	60	174.526**	0.000
	%	56.9 %	22.3 %	20.8 %		
If the child's nose is bleeding, the best way to stop the bleeding is to sit back and lean back and squeeze the nose	N	159	45	96		
	%	52.9 %	15.1 %	32%	149.91**	0.000

** Significance at the 0.05 level

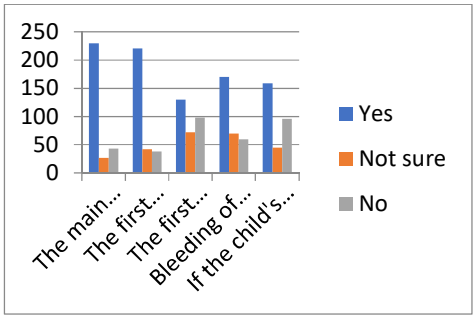

Figure 12: Descriptive analysis and chi square test of Wounds and Bleeding

Descriptive analysis and chi square test of Bone and joint injuries

The Yes, not sure, and No response options were used to gauge a bone and joint damage, as shown in Table (6). To ascertain whether there was a significant difference between the participants, the chi square test was employed. There were four statements with a "Yes" response; the percentages varied from 75.6% to 62.9%. The percentages varied from 48.6% to 37.6%, and three of the statements got a "Not sure" response. The values of the chi square (X2) were noteworthy. The replies to the Statement of the Bone and Joint Injuries varied from "Yes" to "Not sure" ($p<0.01$).

Table 6: Descriptive analysis and chi square test of Bone and joint injuries (n=300)

Statement	N/ %	Yes	Not sure	No	X2	p
There are two types of fractures open and closed.	N	189	99	12	360.29**	0.000
	%	62.9 %	32.9 %	4.3%		
The fractured person should be given fluids.	N	87	146	67	76.57**	0.000
	%	28.6 %	48.6 %	22.9 %		
	N	200	64	36		

In case of bone fractures you must just splint the fractured bone then seeks medical help.	%	66.6 %	21.3 %	12.1 %	356.78**	0.000
During the fracture immobilization only the direct fracture area should be immobilized	N	110	113	77	18.36**	0.000
	%	36.7 %	37.6 %	25.7 %		
In case of open fractures, you should align the ends of broken bone then splint it& send the injured person to the hospital	N	114	136	50	92.57**	0.000
	%	38%	45.3 %	16.7 %		
Joints injuries include Sprains and dislocations.	N	227	60	13	588.38**	0.000
	%	75.6 %	20.1 %	4.3%		
The first aid measures for joint injuries are immobilize area, apply ice/cold pack, use soft splint, and seek medical care	N	212	74	14	481.56**	0.000
	%	70.7 %	24.6 %	4.7%		

** Significance at the 0.05 level

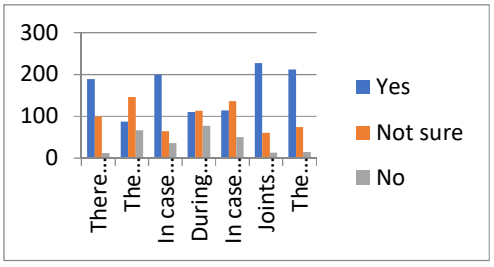

Figure 13: Descriptive analysis and chi square test of Bone and joint injuries

Descriptive analysis and chi square test of Medical situations

As shown in Table (7), the medical status was determined using yes, not sure, and no response. The chi square test was then used to ascertain whether there was a significant difference between the participants' medical statuses. The chi square (X2) values were significant, and the percentages ranged from 90 to 56.6%. A sizable portion of the responses to each statement about medical situations were deemed to be good.($p<0.01$).

Table 7: Descriptive analysis and chi square test of Medical situations (n=300)

Statement	N/ %	Yes	Not sure	No	X2	p
Carcinogenic shock is a life-threatening condition caused by low blood perfusion to tissues, and the first indicator of trauma is loss of consciousness.	N	200	87	13	441.40**	0.000
	%	66.6 %	29%	4.4%		
The main purpose of raising the legs of a fainted person is to increase blood flow to the brain.	N	256	32	12	859.82**	0.000
	%	85.4 %	10.7 %	3.9%		
First aid for choking involves encouraging coughing and pushing (abdominal pressure) if necessary.	N	253	29	18	819.23**	0.000
	%	84.3 %	9.7%	6%		
The most prominent signs of food poisoning are nausea, vomiting, abdominal	N	270	22	8	1013.98**	0.000
	%	90%	7.4%	2.6%		

pain, and headache: fever, diarrhea.						
The best way to help a child with food poisoning is to make him lie down, give him more fluids and then send him to the hospital.	N	170	90	40	198.94**	0.000
	%	56.6 %	30%	13.4 %		

** Significance at the 0.05 level

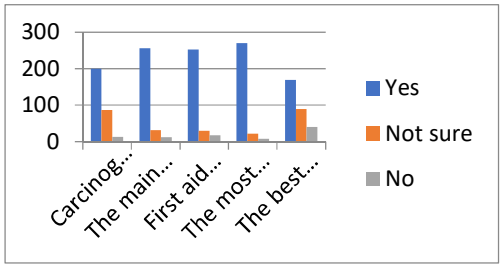

Figure 14: Descriptive analysis and chi square test of Medical situations (n=700)

Descriptive analysis of Burns:

Because burns were scored with three possible answers yes, not sure, and no the chi square test was used to see if there was a significant difference between the participants. The chi square (X2) values showed significance, and the percentages ranged from 88.7% to 44.90%. It was generally reported that all of the Burns' statements had a "Yes" response. (p<0.01)

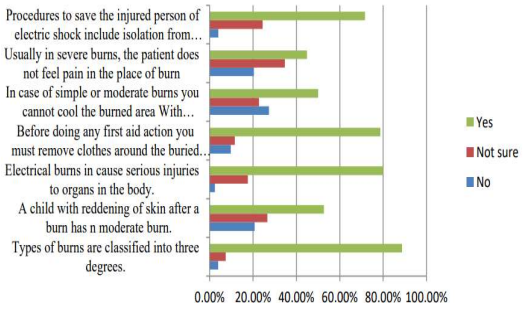

Figure 15: Participants' knowledge regarding Burns ((n=700)

Descriptive analysis of Bites and stings:

Bites and stings were scored using the yes, not sure, and no answer categories, as shown in Figure 16. The chi square test was used to ascertain whether or not there was a significant difference among the participants. In the category of bites and stings, three statements had affirmative responses, ranging in percentage from 71% to 53.7%. Furthermore, one response yielded a null result, with 53% of the chi square (X2) values being significant. (p<0.01)

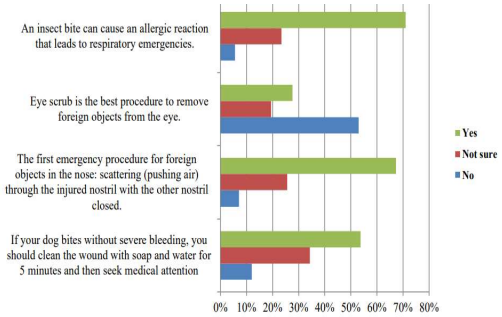

Figure 16: Participants' knowledge regarding Bites and stings (n=700)

Descriptive analysis of Evaluate teacher's attitude toward first aid:

Based on the information presented in Table (8), it can be inferred that a three-point Likert scale, spanning from "agree" to "disagree," was employed to assess instructors' attitudes toward first aid. The determined Cronbach's alpha coefficient of 0.72 produced acceptable results. The overall score was (M=2.41±0.31), with the average score for the scales ranging from (M=2.11, SD=1.06) to (M=0.27, SD=0.68).

Table 8: Descriptive analysis of Evaluate teacher's attitude toward first aid (n=300)

Statement	N/%	Agree	Not sure	Disagree
I think it's important to learn first aid in everyday life.	N	293	2	5
	%	97.6%	0.7%	1.7%
I think learning first aid is a very difficult and complicated process.	N	52	108	140
	%	17.4%	36%	46.6%
I believe that first aid should only be done by experienced health care workers.	N	84	79	137
	%	28%	26.4%	45.6%
I think that training teachers to provide first aid is useful and important	N	281	12	7
	%	93.7%	3.9%	2.4%
I tend to watch TV shows about emergencies and first aid.	N	222	55	23
	%	74%	18.3%	7.7%
I feel uncomfortable to see injuries or	N	185	61	54
	%	61.6%	20.4%	18%

blood in front of my eyes.				
I think it's very important to have a first aid kit at school.	N	287	6	7
	%	95.6%	2.1%	2.3%
As a child teacher, I refuse to accept epilepsy in my class.	N	77	107	116
	%	25.9%	35.6%	38.6%
I think teachers and their students should be taught first aid.	N	283	9	8
	%	94.3%	3.1%	2.6%
If I have an emergency in my class, I would rather ask other teachers for help, instead of me	N	120	97	83
	%	39.9%	32.4%	27.7%
I think a child with asthma or diabetes should be isolated with children with special needs	N	62	95	143
	%	20.6%	31.7%	47.7%
If I have the knowledge and skills about first aid I will perform it for the child who needs it.	N	276	15	9
	%	92.3%	4.9%	2.9%
Over all mean±SD= 2.41±0.31				
Cronbach alpha (α)=0.72				

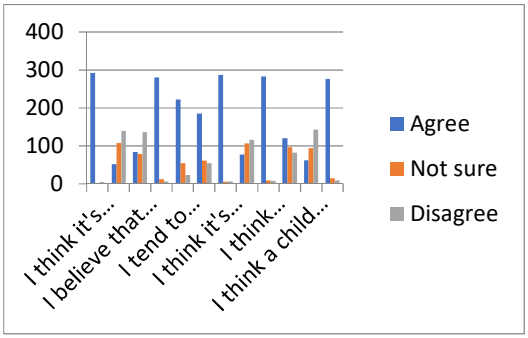

Figure 17: Descriptive analysis of Evaluate teacher's attitude toward first aid

Knowledge on first aid

Table 9: Knowledge on First Aid

Characteristics	Frequency (n=300)	Percentage %
Heard about first aid		
Yes	298	99.4
No	2	0.6
Correct definition		
A completing a primary survey	43	14.5
The first help to the victim of an accident	249	83
Assessing a victim's signs	4	1.2
Treating victim of shock	4	1.2
Attained Training or workshop		
Yes	129	43
No	171	57
If attained		
To provide medical care on the spot	95	73.6
To prevent over expenses	12	9.7
To maintain airway, breathing, and circulation	1	1.2
All of the above	17	13.5

Among all of the participants, there were three hundred instructors who were aware of first aid, which is something that is evident; yet, I was surprised to learn that there is one teacher who is completely ignorant of first aid. When asked to describe first aid, 83% of respondents characterized it as "the first help to the victim of an accident." On the other hand, 14.5%, 1.2%, and 1.2% of respondents defined it as "A completing a primary survey," "Assessing a victim's signs," and "Treating victim of shock," respectively. Additionally, the table presents a variety of fascinating facts on the participants who have attended a workshop or training session, and as we can see, the statistics are significantly more on the negative side. 57% of the population has not participated in any training or workshop, whilst 43% of the population has either participated in training or attended workshops.

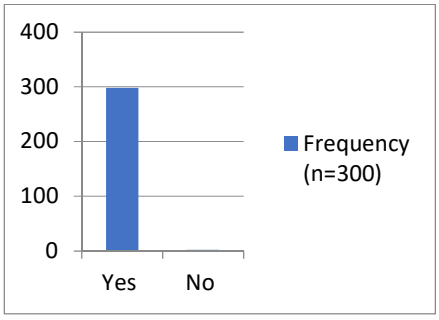

Figure 18: Heard about first aid

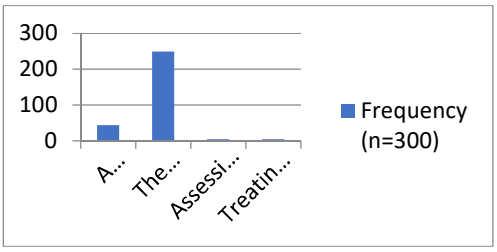

Figure 19: Correct definition

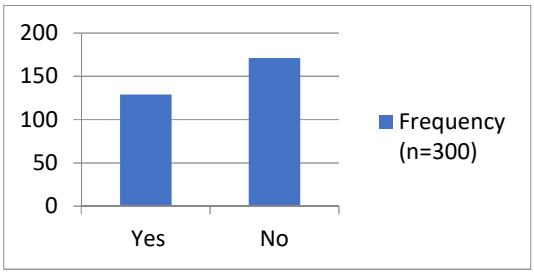

Figure 20: Attained Training or workshop

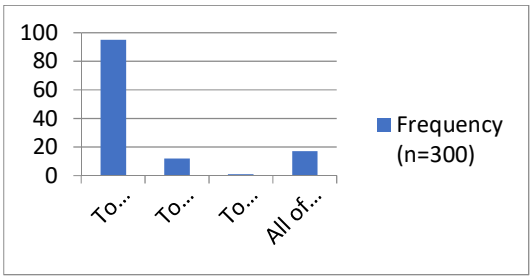

Figure 21: If attained training

Table 10: Knowledge on First Aid

Characteristic	Frequency (n=300)	Percentage %
School having first aid box		
Yes	273	90.9
No	27	9.1
School having stretcher		
Yes	55	18.2
No	245	81.8
School having sick room		
Yes	82	27.3
No	218	72.7
Direct contact with hospital		
Yes	245	81.8
No	55	18.2
School having nurses		
Yes	82	27.3
No	218	72.7
Provision of sudden accident		
Yes	109	36.4
No	191	63.6
Death of child during school		
Yes	55	18.2
No	245	81.8

According to the data, the percentage of schools that had a first aid kit was 90.9% (273), and among those schools, 9.1% (27) claimed to have heard about first aid. The school did not have a stretcher in 81.8% of cases (245), and the school only had a sick room in 27.3% of cases (82) of cases, which is lower than what was anticipated. In this way, the percentage of schools that have direct contact with the hospital is 81.8% (245), while the percentage of schools that do not have communication with the hospital is 18.2% (55). It was reported that 36.4% of students had a sudden accident at school or during the time period in question, whereas 63.6% of students said that their school did not have an emergency condition or a sudden accident. In the school, the record of child deaths that occurred during the period that the respondent teacher was attending school was 18.2% (55), with 81.8% (245) of the teachers asking whether or not there was a death in the school.

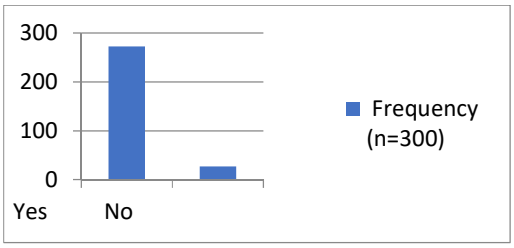

Figure 22: School having first aid box

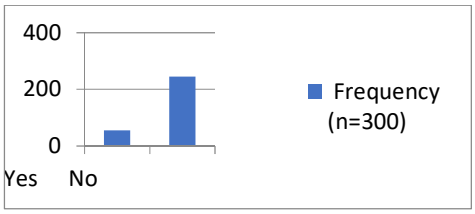

Figure 23: School having stretcher

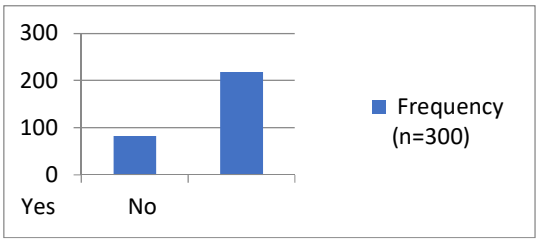

Figure 24: School having sick room

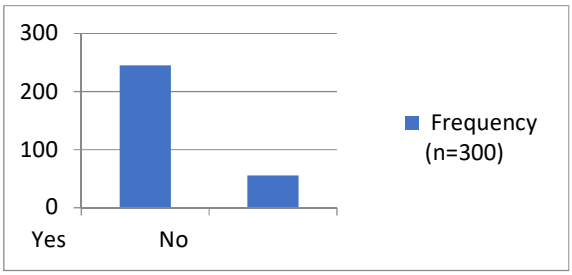

Figure 25: Direct contact with hospital

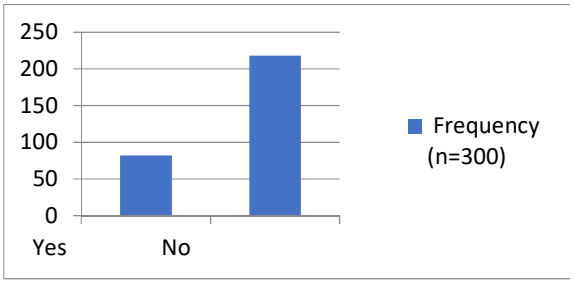

Figure 26: School having nurses

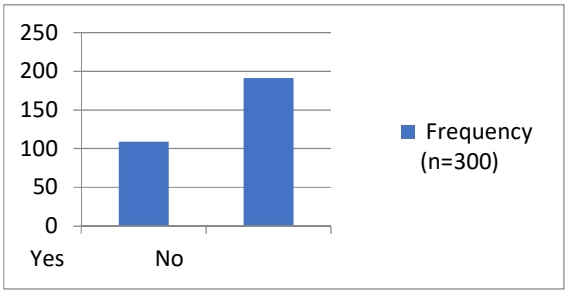

Figure 27: Provision of sudden accident

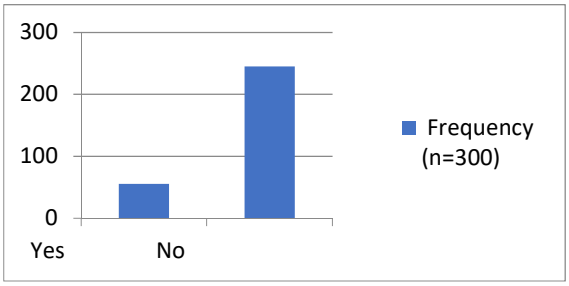

Figure 28: Death of child during school

Table 11: Most Common Accident

Characteristic	Frequency (n=300)	Percent of cases %
Burn	43	14.2
Chocking	40	24.2
Insectbites	61	37.0
Epitasis	54	32.7
Fracture	72	43.6
Wound	284	94.8
Fainting	58	35.2
Poisoning	27	16.4
Shock	28	17.0

The table above illustrates the most frequent accidents that happen in schools when children are enrolled in classes. The multiple-choice questions include burns (43.2%), chocking (40.2%), insect bites (61.0%), epitasis (54.7%), fractures (72.6%), wounds (140.8%), fainting (58.2%), poisoning (27.4%), and shock (28.7%), in that order. Feverishing is the third stated category, and wounds account for the highest percentage or frequency among them, with 284 (94.8%) being the most common accident category and insect bites in the second.

Table 12: First Aid Management

Characteristic	Frequency (n=300)	Percent of cases %
First aid management of insect bites		
Hot compression	136	45.5
Gentle tightening above the site of sting	82	27.3
Pain reliving drug	33	10.9
Reassurance	49	16.4
Rubbing the eye the best method of removing foreign bodies from eye		
True	36	12.1
False	264	87.9
First aid management of dog bite		
Hospital Visit	58	19.4
Inform the parents	25	8.5
Wash the wound with water	205	68.5
Give him water to drink	11	3.6
First aid management of seizure attack		
Keeping the person safe until the seizure stop	89	29.7
Stay calm, loosen around the neck area	51	17.0
Stay with him if the seizure stops	25	8.5
All of the above	135	44.8

The management process for the question regarding the management of insect bites is shown in table 5.13 above. It includes option 136 (45.5%), gentle tightening above the sting site 82 (27.3%), pain-relieving medication 33 (10.9%), and reassurance 49 (16.4%), for which 136 (45.5%) and (16.4%) provided the incorrect response. The best way to remove foreign bodies from the eye is to rub it. Of those who responded, 264 (87.9%) said that this was the incorrect approach, while 36 (12.1%) said that this was the correct approach. In the first aid management of dog bites, the largest number of correct answers was wash the wound with soap and water (19.4%), notify the parents 25 (8.5%), wash the wound with water 205 (68.5%), and offer water to drink 6 (3.6%). First aid management during a seizure attack: out of the 135 questions above, 135 (44.8%) had the correct response.

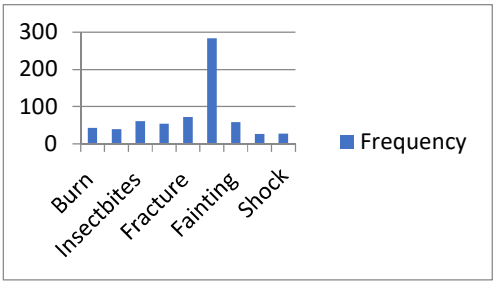

Figure 29: Most Common Accident

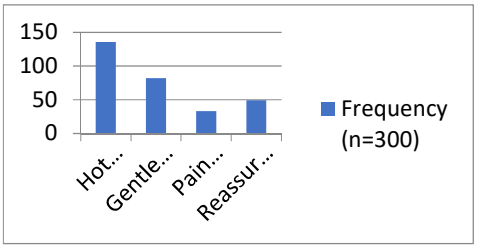

Figure 30: First aid management of insect bites

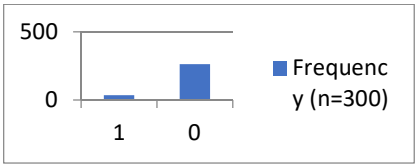

Figure 31: Rubbing the eye the best method of removing foreign bodies from eye

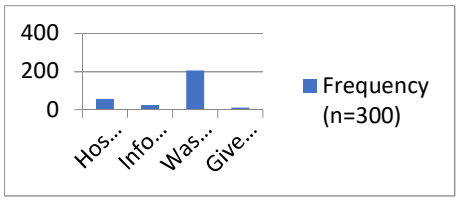

Figure 32: First aid management of dog bite

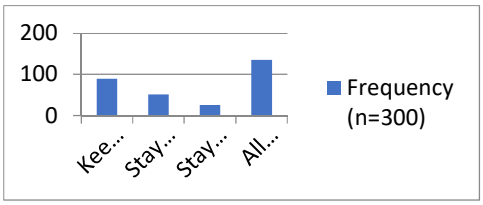

Figure 33: First aid management of seizure attack

Section-B

Structured Knowledge Questionnaire on first aid management of selected minor injuries: wounds, bleeding/hemorrhage, fracture, sprain, dislocation, nose bleeding, seizures/epilepsy

Description of statistical value of pretest and posttest knowledge on selected aspects of first aid emergencies and its management of school students among school students.

Table 13: Description of Statistical Value of Pretest and Posttest Knowledge on General Aspects of First Aid of School Students Among School students (N = 300)

S. No.	Knowledge Factor	Pre test		Post test		Mean difference
		Mean	S.D	Mean	S.D	
1.	Meaning of first aid	0.48	0.50	0.936	0.24	0.456
2.	the main aim of first aid	0.353	0.47	0.966	0.17	0.613
3.	Who is a first aider	0.383	0.48	0.843	0.36	0.46
4.	the quality of a first aider	0.453	0.49	0.78	0.41	0.327
5.	first aid treatment is required you should	0.236	0.42	0.746	0.39	0.51
6.	the key steps in first aid	0.43	0.49	0.743	0.43	0.313
7	Which is not including in assessing the emergency	0.316	0.46	0.833	0.37	0.407
8	providing first aid while waiting for the ambulance to arrive you should	0.426	0.49	0.91	0.28	0.483
9	Which is not included in first aid kit	0.44	0.49	1	0	0.586
10	First aid for school children is needed in	0.13	0.33	0.806	0.29	0.676

Table 13 shows the pretest and posttest mean values of knowledge regarding general aspects of first aid among School students. It reveals the posttest mean values are higher than the pretest mean values. The Posttest SD values are lesser than the pretest SD value. In mean difference in the area of main aim of first aid, Considerations that are not included in the first aid pack and the requirement for first aid for school-aged children demonstrates that there is a greater mean difference between the students' results on the pre-test and the post-test regarding their understanding of broad features of first aid.

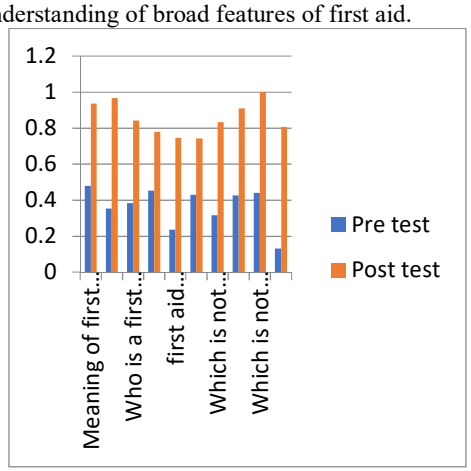

Figure 34: Pretest and Posttest Knowledge on General Aspects of First Aid of School Students among School students

Table 14: Description of Statistical Value of Pretest and Posttest Knowledge on First Aid for Wound and Hemorrhage among School students (N = 300)

S.No.	Knowledge Factor	Pre test		Post test		Mean difference
		Mean	S.D	Mean	S.D	
1.	Meaning of wound	0.4733	0.50	0.92	0.27	0.447
2.	How will you treat a wound immediately	0.373	0.48	0.806	0.39	0.433
3.	The immediate danger of wound	0.35	0.47	0.81	0.39	0.46
4.	a foreign body present in the wound and it bleeds, what should you do	0.422	0.49	0.873	0.33	0.451
5.	Meaning of hemorrhage	0.231	0.42	0.776	0.41	0.545
6.	What should be done if the child is having a high degree of hemorrhage	0.406	0.49	0.843	0.36	0.437
7	the treatment given to the child with a hemorrhage	0.323	0.46	0.973	0.16	0.65
8	How many minutes you will apply pressure for a child with hemorrhage	0.393	0.48	0.853	0.35	0.46
9	What will you do if you find the hemorrhage have been stopped	0.433	0.49	0.89	0.31	0.7
10	The complication of uncontrolled bleeding	0.16	0.36	0.886	0.31	0.726

The results of the pre-test and post-test mean scores for students' knowledge of first aid as it relates to wound and hemorrhage treatment for school-aged children are presented in Table 14.

Table 15 Description of statistical value of pretest and posttest knowledge score on Fracture, Sprains and dislocation of school children among School students (N=300)

Sl. No	Fracture, Sprains and dislocation	Mean	S.D	't' value	Level of significance
1.	Pre test	3.61	0.662	89.490	P <0.01
2.	Post test	8.63	0.785		

The results of the pre-test and post-test knowledge scores on fractures, sprains, and dislocations of schoolchildren are presented in Table 15. This gives a description of the statistical value of these scores. On the other hand, the mean value of the posttest is 8.63 with a standard deviation of 0.785, whereas the mean value of the pretest is 3.61 with a standard deviation of 0.662.Based on the study of the empirical data, it has been deduced that the estimated "t" values are within the statistical bounds at a significance level of one percent. Therefore, the hypothesis that was constructed is accepted, and it is determined that there is a substantial difference between the information that school pupils had

before and after the exam about fractures, sprains, and dislocations.

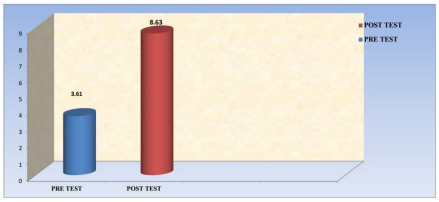

Figure 35: Description of statistical value of pretest and posttest knowledge score on Fracture, Sprains and dislocation for school children among School students

Table 16: Description of statistical value of pretest and posttest knowledge score on Epistaxis of school children among School students (N=300)

S. No.	Epistaxis	Mean	S.D	't' value	Level of significance
1.	Pre test	3.64	.845	76.225	P <0.01
2.	Post test	8.70	.761		

The results of the pre-test and post-test knowledge scores on Epistaxis of school children are presented in Table 16. This table provides a description of the statistical value related to these scores.

The above table reveals that the pretest mean value is 3.64 with SD of 0.845and posttest mean value is 8.70 with SD of 0.761.From the empirical data analysis it has been inferred that the calculated "t" values falls with the statistical limits at one per cent of significance. Therefore, the hypothesis that was formulated is accepted, and the conclusion that can be drawn is that there is a substantial difference between the pre-test and post-test knowledge of school students on epistaxis for school children.

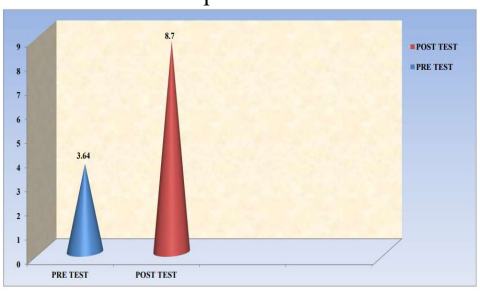

Figure 36: Description of statistical value of pretest and posttest knowledge score on Epistaxis for school children among School students

Table 17 Description of statistical value of pretest and posttest knowledge score on Epilepsy for school children among School students (N=300)

S. No	Epilepsy	Mean	S.D	't' value	Level of significance
1.	Pre test	3.64	0.845	76.225	P <0.01
2.	Post test	8.70	0.870		

Table 17 shows that Description of statistical value of pretest and posttest knowledge score on Epilepsy for school children among School students

The above table reveals that the pretest mean value is 3.64 with SD of 0.845 and posttest mean value is 8.70 with SD of 0.870. Based on the study of the empirical data, it has been deduced that the estimated "t" values are within the statistical bounds at a significance level of one percent. Therefore, the hypothesis that was formulated is the one that is accepted, and the conclusion that can be drawn is that there is a substantial difference between the pre-test and post-test knowledge of epilepsy among school children.

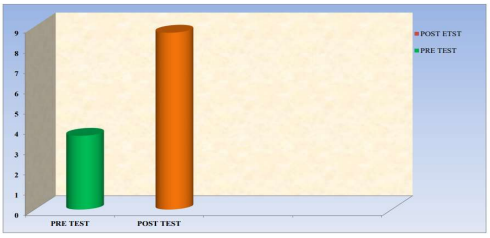

Figure 37: Description of statistical value of pretest and posttest knowledge score on Epilepsy for school children among School students

Table 18 Description of statistical value of pretest and posttest knowledge score on selected aspects of first aid emergencies and its management for school children among School students (N=300)

S. No	Knowledge	Mean	S.D	't' value	Level of significance
1.	Pre test	18.10	2.729	120.939	P <0.01
2.	Post test	43.55	2.303		

Table 18 displays the findings of the pre- and post-test knowledge scores on specific first aid scenarios and how schoolchildren should be treated. The statistical significance of the data pertaining to these aspects is described in this table. According to the results, the mean score prior to the test was 18.10, while the mean score following the test was 43.55. A statistically significant difference exists between the pre- and post-test scores for school students' knowledge on specific first aid emergencies and how to handle them for their children. This difference is demonstrated by the accepted calculated value of 't' = 120.939 and the table value of 't' = 000 at the P = 0.01 level of significance for 299 degrees of freedom. This leads

one to the conclusion that there is a noticeable difference.

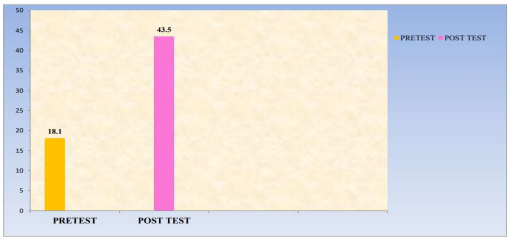

Figure 38: Description of statistical value of pretest and posttest knowledge score on selected aspects of first aid emergencies and it management among school students among School students

Distribution of statistical value of pretest and posttest practice score on selected aspects of first aid emergencies and its management of school students among school students

Table 19: Description of statistical value of pretest and posttest practice score on general aspects of first aid for school children among School students (N=300)

S. No	General Aspects	Mean	S.D	't' value	Level of significance
1.	Pre test	22.46	3.82	98.13	P <0.01
2.	Post test	46.04	1.69		

The statistical significance of the practice scores on the pre- and post-tests for general first aid features for schoolchildren among the student population of schools is described in Table 19. The pre-test mean value was 22.46, with a standard deviation of 3.82, and the post-test mean value was 46.04, with a standard deviation of 1.69, based on the information shown in the above table. The empirical data analysis has led to the conclusion that, at a significance level of one percent, the estimated "t" values fall inside the statistical boundaries. As a consequence, the hypothesis is supported, and it is possible to conclude that there is a significant difference in schoolchildren's pre- and post-test practice scores on important first aid components.

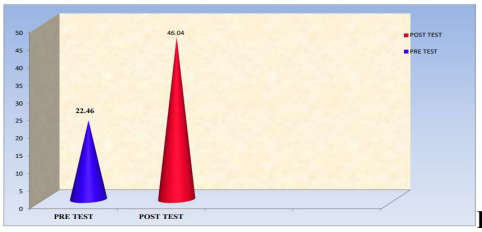

Fig. 39: Description of statistical value of pretest and posttest practice score on general aspects of first aid for school children among School students

Table 20 Description of statistical value of pretest and posttest practice score on wound and hemorrhage for school children among School students (N=300)

S. No	Wound and hemorrhage	Mean	S.D	't' value	Level of significance
1.	Pre test	23.22	2.80	129.86	P <0.01
2.	Post test	46.52	1.48		

Table 20 provides an explanation of the statistical significance of the pre- and post-test practice scores on wound and bleeding for school-age children. Children that are enrolled in school are covered by this. Conversely, the pretest's mean score was 23.22 with a standard deviation of 2.80, while the posttest's mean score was 46.52 with a 1.48 standard deviation. The empirical data analysis has led to the conclusion that, at a significance level of one percent, the estimated "t" values fall inside the statistical boundaries. In light of this, the hypothesis is accepted, and it is determined that school students' pre- and post-test practice scores regarding first aid for wounds and bleeding alter significantly.

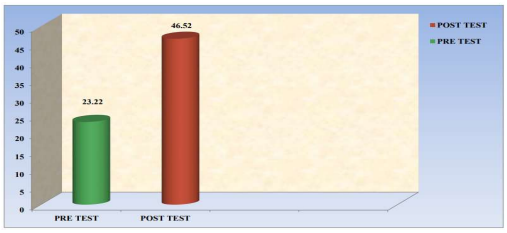

Fig. 40: Description of statistical value of pretest and posttest practice score on wound and hemorrhage for school children among School students

Table 21: Description of statistical value of pretest and posttest practice score on fracture, sprain and dislocation for school children among School students (N=300)

S. No	Fracture, sprain and dislocation	Mean	S.D	't' value	Level of significance
1.	Pre test	23.69	2.27	150.49	P <0.01
2.	Post test	46.52	1.39		

Table 21 illustrates this by giving a summary of the practice score's statistical significance for fracture, sprain, and dislocation among schoolchildren. Conversely, the pretest's mean value was 23.69 with a standard deviation of 2.27, whereas the posttest's

mean value was 4652 with a standard deviation of 1.93.The empirical data analysis has led to the conclusion that, at a significance level of one percent, the estimated "t" values fall inside the statistical boundaries. The hypothesis is thus supported, and it is possible to conclude that there is a significant difference between schoolchildren's pre- and post-test practice scores regarding first aid for fractures, sprains, and dislocations.

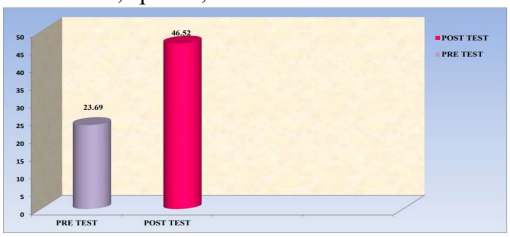

Fig. 41: Description of statistical value of pretest and posttest practice score on fracture, sprain and dislocation for school children among School students

Hypothesis Testing

H_1: There is significant difference in the level of knowledge regarding first aid management of selected minor injuries among school students before and after the intervention at p≤0.05 levels.

H_0: There is no significant difference in the level knowledge regarding first aid management of selected minor injuries among school students before and after the intervention at p≤0.05 levels.

Table 22 Description of statistical value of pretest and posttest knowledge score on general aspects of first aid of school students among School students (N=300)

S. No	General aspect	Mean	S.D	't' value	Level of significance
1.	Pre test	3.65	.859	73.543	P <0.01
2.	Post test	8.56	.817		

A description of the statistical value of the pre-test and post-test knowledge scores on general features of first aid for school children is presented in Table 22. There are school pupils who are included in this study. This table indicates that the mean value of the pretest is 3.65, with a standard deviation of 0.859, and the mean value of the posttest is 8.56, with a standard deviation of 0.817. Based on the study of the empirical data, it has been deduced that the estimated "t" values are within the statistical bounds at a significance level of one percent. As a result, the hypothesis that was formulated is accepted, and the conclusion that can be drawn is that there is a substantial difference between the pre-test and post-test knowledge scores of school students on general features of first aid for school children.

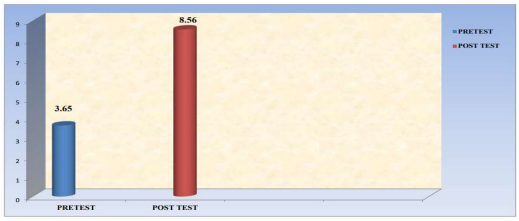

Figure 42: Description of statistical value of pretest and posttest knowledge score on general aspects of first aid of school children among School students

H_2: There is significant difference in the level of practice regarding first aid management of selected minor injuries among school students before and after the intervention. at p≤0.05 levels.

H_0: There is no significant difference in the level practice regarding first aid management of selected minor injuries among school students before and after the intervention. at p≤0.05 levels.

Table 23: Description of statistical value of pretest and posttest practice score on selected aspects of first aid emergencies and its management for school children among School students (N=300)

S. No	Practice	Mean	S.D	't' value	Level of significance
1.	Pre test	115.23	7.367	249.72	P <0.01
2.	Post test	232.20	3.398		

A description of the statistical value of the pre-test and post-test practice scores on chosen areas of first aid situations and their treatment for school children is presented in Table 23. This represents the students' performance in the practice tests. Pretest mean value is 115.23, with a standard deviation of 7.367, and posttest mean value is 7.367, with a standard deviation of 3.398, as shown by this. Compared to the SD value obtained before the test, the post-test SD value is lower. Both the computed value of 't' = 249.72, which is higher than the table value, and the table value of 't' = 000 at the P = 0.01 level of significance for 299 degrees of freedom are both higher than the table value. Therefore, the hypothesis that was formulated is accepted, and it is determined that there is a substantial difference between the pre-test and post-test practice score on chosen parts of first aid emergencies and their management among school children. This is the conclusion that can be drawn.

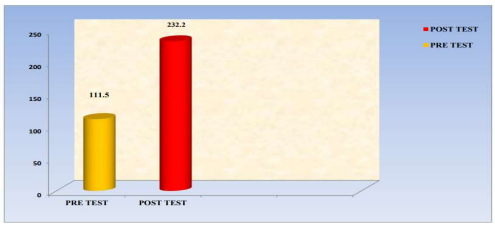

Figure 43: Description of statistical value of pretest and posttest Practice score on selected aspects of first aid emergencies and it management among school students among School students

H_3: There is significant association between the levels of knowledge regarding first aid management of selected minor injuries among school students with their selected demographic variable at $p \leq 0.05$ level.

H_0: There is no significant association between the levels of knowledge regarding first aid management of selected minor injuries among school students with their selected demographic variable at $p \leq 0.05$ level.

Table 24: Association of selected demographic variables with level of knowledge in posttest score regarding selected aspects of first aid emergencies and its management for school children among School students (N=300)

S. No.	Demographic Variables	DF	$\chi 2$ value	SIG
1.	Age in years a. 7-10 years b. 11-14 years c. > 14 years	26	29.153	.304
2.	Sex a. Male b. Female	13	18.237	.149
3.	Educational Qualification a. Lower primary class b. Upper primary class	13	14.113	.366
5.	Religion a. Hindu **b.** Christian **c.** Muslim	26	40.836	.032
6.	Area of the residence a. Urban b. Rural	13	12.206	.511
7.	Source of information a. no source b. mass Media c. Friends and family d. health Professional	39	34.553	.673
8.	Presence of first aid box in your house a. yes b. No	13	7.033	.900

Table 24 presents the results of an analysis that examines the relationship between certain demographic characteristics and the degree of knowledge in posttest scores about certain components of first aid crises and the management of these situations for schoolchildren. The $\chi 2$ value for the demographic factors of school pupils is not significant at the 0.01 level, which indicates that the association between the selected demographic characteristics and the degree of knowledge in posttest scores is not significant. As a result, there was no significant link between the selected demographic characteristics and the degree of knowledge in the posttest score regarding selected components of first aid situations and their management among school pupils. This was the case because none of the variables were significantly related to one another.

H4: There is significant association between the levels of practice regarding first aid management of selected minor injuries among school students with their selected demographic variable at $p \leq 0.05$ level.

H_0: There is no significant association between the levels of practice regarding first aid management of selected minor injuries among school students with their selected demographic variable at $p \leq 0.05$ level

Table 25: Association of selected demographic variables with level of practice in posttest score on selected aspects of first aid emergencies and its management for school children among School students

S. No.	Demographic Variables	DF	$\chi 2$ value	SIG
1.	Age in years a. 7-10 years b. 11-14 years	38	46.272	.168

	c. > 14 years			
2.	Sex a. Male b. Female	19	17.543	.553
3.	Educational Qualification a. Lower primary class b. Upper primary class	19	14.286	.767
5.	Religion a. Hindu b. Christian c. Muslim	38	38.667	.439
6.	Area of the residence a. Urban b. Rural	19	14.814	.734
7.	Source of information a. no source b. mass Media c. Friends and family d. Health Professional	57	54.274	.578
8.	Presence of first aid box in your house a. yes b. No	19	13.573	.808

The results of the posttest scores for chosen components of first aid situations and their treatment for school children are presented in Table 25. This table presents the association between selected demographic characteristics and the degree of practice in posttest scores. The $\chi 2$ value for the demographic factors of school students is not significant at the 0.01 level, which indicates that the link between the selected demographic characteristics and the amount of practice in posttest score is not significant. As a result, there was no significant connection between the selected demographic characteristics and the degree of practice in the posttest score regarding the selected parts of first aid situations and their management for school students. This was the case among school students.Summary

First aid is the immediate care provided to an injured or suddenly ill person before professional medical assistance becomes available. The major objectives of first aid are to save life, prevent the condition from worsening, relieve pain, and promote recovery. Children are highly vulnerable to accidents and emergencies, especially in school environments where they spend most of their time under the supervision of teachers. Therefore, teachers and school personnel should possess adequate first aid knowledge and skills to manage emergencies effectively. First aid training helps individuals respond confidently during crises such as fractures, burns, bleeding, epilepsy, choking, drowning, and cardiac arrest. It also minimizes complications, reduces recovery time, and promotes community safety and resilience. The findings of the present study revealed a significant improvement in students' knowledge and practice regarding first aid management after the intervention program. The post-test mean scores for knowledge and practice in areas such as wounds, hemorrhage, fractures, sprains, epistaxis, and epilepsy were considerably higher than the pre-test scores. The obtained 't' value indicated a statistically significant improvement in first aid knowledge and practice among school students following the educational intervention. The study emphasizes the importance of implementing regular first aid training programs in schools to enhance emergency preparedness, improve safety awareness, and reduce injury-related complications among children.

Conclusion

This educational measure demonstrates that there has been a considerable increase in the understanding and practice of some areas of first aid situations and the management of school pupils among school students. When compared to the score on the pretest, the posttest score on both knowledge and practice was shown to be very significant. Additionally, the effect was determined to be significant. According to the results of the retention test, the intervention program was shown to have an effect that lasted for a significant amount of time. In the majority of cases, elementary school children get small injuries such as sprains, strains, minor burns, and epistaxis, among other types of injuries. These children always require first aid care in order to avoid their condition from becoming more severe, and school instructors are the closest individuals to manage their minor injuries. In the event that school teachers have sufficient information about the administration of first aid, they have the potential to not only assist in lowering the rate of problems and absence among students, but also to save the lives of children in the event that it is necessary. The results of this study demonstrated that an organized instructional program on the treatment of first aid for a selection of small injuries was beneficial. All aspects of the participant's knowledge of first aid were satisfactory, with the exception of the general understanding regarding management, which was satisfactory. On the other hand, the direction association between teacher educational status was found to be significant. First aid interventions that are implemented in schools in order to gain an understanding of the breadth of training that is provided to students as well as the more general

aspects of first aid that are suitable for the age group of adolescents and are unique to the environment in which they are being used. There is a need for further study to be conducted about the advantages of having knowledge of first aid for the avoidance of injuries.

Nursing ImplicationsThe statement "An ounce of prevention is better than a pound of cure" accurately reflects the importance of first aid in emergency situations. First aid refers to the immediate care provided to an injured or suddenly ill person before professional medical help becomes available. Accidents and emergencies can affect individuals of all age groups, making first aid knowledge essential for everyone. Schools should ensure the availability of adequate resources to effectively implement and sustain first aid programs. Hands-on training, demonstrations, and discussions regarding injury experiences can improve awareness and reduce the occurrence of injuries among students. Previous studies have shown that first aid education enhances safety awareness and decreases accident risk. Therefore, continued research on first aid training and injury prevention among adolescents remains highly important for effective injury control and public health promotion.

Nursing Practice

Regular practical training programs can enhance school students' knowledge and skills in first aid management. Community health nurses and pediatric nurses should be encouraged to implement evidence-based practices in managing first aid situations among school children. Nurses can demonstrate first aid management through school medical camps and awareness activities. Health teams should emphasize supervision, teaching, and promotion of first aid knowledge among teachers, students, and the public. Nurses must also remain updated with current first aid practices to effectively educate and train the community.

Nursing Education

The nursing curriculum should prepare students to provide effective care in both hospital and community settings while promoting adequate first aid knowledge and skills among the public through mass media. Nursing institutions should organize regular first aid training programs as part of curricular activities. Various teaching methods such as lectures, discussions, simulations, demonstrations, posters, films, and role plays can effectively disseminate first aid information. Continuing nursing education programs should emphasize effective first aid management among school students, and adequate literature related to first aid management should be made available in nursing institutions.Nursing Administration

Nurse administrators play an important role in coordinating preventive, curative, promotive, and rehabilitative healthcare services. Government authorities should support simulated first aid training programs for secondary school students. Nursing administrators at all healthcare levels should promote awareness regarding first aid and lifesaving skills. They should encourage nurses to participate in in-service education, refresher courses, and seminars. Nurse administrators must also strengthen school health programs by involving pediatric and community health nurses in improving first aid awareness and knowledge among school children.

Nursing Research

Nursing research plays a vital role in expanding the scope and advancement of the nursing profession through continuous scientific investigation. Further research is needed to identify effective educational approaches that improve public knowledge and skills in emergency management and first aid. Detailed studies using diverse assessment tools should evaluate first aid knowledge, competency, and practices. Additionally, more research should be conducted to determine accident frequency, and the findings should be shared through conferences, seminars, and scientific journals to enhance awareness and professional practice.

Recommendations

The study highlights the need for extensive first aid research in schools and communities across India. Future studies should focus on large populations using randomized sampling, develop intervention and counseling programs, integrate first aid into teacher education curricula, encourage teacher participation, involve healthcare professionals, and collaborate with health authorities for mandatory first aid training programs.

6.5 EDUCATIONAL IMPLICATIONS OF THE STUDY

The findings of the study have important implications for education, particularly for elementary school students, teachers, parents, and the wider community. First aid knowledge is essential for saving lives and promoting safety awareness among students in both school and daily life. Schools should establish a strong culture of safety and provide adequate first aid facilities, including first aid rooms, trained personnel, kits, and emergency contact systems. Simulated first aid

activities should be integrated into regular school practices to enhance practical skills. Textbooks should include first aid content, and specialized first aid training packages should be developed. Furthermore, first aid education should be incorporated into pre-service and in-service teacher training programs and extended to the general public for effective disaster preparedness and emergency response.

Limitations

1. Only primary school children between the ages of 7 -14 are included in the research.
2. However, it is only available to a restricted group of schools in Bangalore.
3. In this case, the intervention time is restricted to a single month.
4. Extraneous factors, such as information provided by other health experts, the mass media, and other individuals, which may have impacted the knowledge, were not under the control of the investigator.
5. In this investigation, there was no control group that was used. There was a chance of a danger to the internal validity of the study, due to the fact that events that took place between the pre-test and post-test sessions, such as the impact of the mass media or other individuals, may have an effect on the knowledge and practice of the school students.

Future scope of the study

1. The research might be carried out at the collegiate level.
2. Only educators are eligible to participate in this study.
3. The comparison of males and females is something that can be done for this investigation.
4. Research like this can also be conducted from the point of view of parents.

References

1. Jamaludin, T. S. S., Zakaria, M. A. B., Saidi, S., & Chan, C. M. (2018). Knowledge, Awareness and Attitude of First Aid Among Health Sciences University Students. International Journal Of Care Scholars, 1(1), 29-33.

2. Qureshi, F. M., Khalid, N., Nigah-e-Mumtaz, S., Assad, T., & Noreen, K. (2018). First aid facilities in the school settings: Are schools able to manage adequately? Pakistan Journal of Medical Sciences, 34(2), 272–276. https://doi.org/10.12669/pjms.342.14766

3. Mohd Sharif, N. A., Che Hasan, M. K., Che Jamaludin, F. I., &ZulHasymi Firdaus, M. K. (2018). The need for first aid education for adolescents. EnfermeríaClínica, 28, 13–18. https://doi.org/10.1016/S1130-8621(18) 30028-7

4. Musa HM, Bharti RK, Alsamghan AS, Asiri M, Alqahtani MS, Al-qahtani D, et al. : Knowledge of First Aid Skills among Medical Students in King Khalid University, Abha, Saudi Arabia. PJSR ;2017:10(1):1-6.

5. Magrabi, N. M. E., ElwardanyAly, S., & Khalaf, S. A.-R. (2017). Impact of training programme regarding first aid knowledge and practices among preparatory schools' teachers at Assiut City. Journal of Nursing Education and Practice, 7(12), 89. https://doi.org/10.5430/jnep.v7n12p89

6. Pandey, R., Chauhan, R., Dobhal, S., Dabral, S., Nathani, S., Negi, S., ... &Sorte, D. Y. (2017). First aid knowledge among health assigned teachers of primary schools. International Journal of Research in Medical Sciences, 5(4), 1522-1527.

7. Bakke, H. K., Steinvik, T., Angell, J., &Wisborg, T. (2017). A nationwide survey of first aid training and encounters in Norway. BMC Emergency Medicine, 17, 6. https://doi.org/10.1186/s12873-017-0116-7

8. Holding, E., Relton, C., Roberts, K., & Oliver, E. (2017). First aid intervention in the adult population: Yorkshire Health Study and its implications for first aid education. International Journal of First Aid Education, 1(2), 1. https://doi.org/10.21038/ijfa.2017.0009

9. Galindo Neto, N. M., Caetano, J. Á., Barros, L. M., Silva, T. M. D., & Vasconcelos, E. M. R. D. (2017). First aid in schools: construction and validation of an educational booklet for teachers. Acta Paulista de Enfermagem, 30(1), 87- 93.

10. Wilks, J., &Pendergast, D. (2017). Skills for life: First aid and cardiopulmonary resuscitation in schools , Skills for life: First aid and cardiopulmonary resuscitation in schools. Health Education Journal, 76(8), 1009–1023. https://doi.org/10.1177/0017896917728096

11. Gore, C. A., Sankar, S., Sheriff, S., Anand, S., Smrithika, L., &Maiya, S. (2017). A study on knowledge regarding first aid among undergraduate medical students. International Journal Of Community Medicine And Public Health, 4(7), 2555-2557.

12. Kim, S.-J., Baek, S.-S., & Kang, K.-A. (2017). Development and exploratory testing of a school-based educational programme for healthy life behaviors among fifth grade children in South Korea. Japan Journal of Nursing Science, 14(1), 13–26. https://doi.org/10.1111/jjns.12130

13. Patrick, P., & Matteson, S. (2017). Elementary and middle level biology topics: a content analysis of Science and Children and Science Scope from 1990 to 2014. Journal of Biological Education, 0(0), 1–10. https://doi.org/10.1080/00219266.2017.1293556

14. Mirza, M. A., Bukhari, H., AlFalogy, E. H., Mohammed, N. S., Basfar, A. M., Kelantan, S. R., ... & Saleem, H. H. (2018). Is providing a structured

first- aid training course to secondary school students in makkah city, effective compared to non-trained students in improving overall skills, an intervention study. Indo American Journal of Pharmaceutical Sciences, 5(12), 16797-16804.

15. Alhejaili, A. S., &Alsubhi, S. A. (2016). Knowledge and Attitude of First Aid Skills among Health Science Students at Taibah University. Journal of General Practice, 4(3), 1–5. https://doi.org/10.4172/2329-9126.1000257

16. Lenson, M. S., & Mills, J. (2016). First aid knowledge retention in school children: A review of the literature.

17. Khatatbeh, M. (2016). First aid knowledge among university students in Jordan. International journal of preventive medicine, 7.

18. Zayapragassarazan, Z. (2016). Urgent Need to Train Teachers and Students in First Aid and CPR (Vol. 8). Retrieved from https://eric.ed.gov/?q=first+aid +&id=ED566962

19. Reveruzzi, B., Buckley, L., & Sheehan, M. (2016). School-Based First Aid Training Programs: A Systematic Review. Journal of School Health, 86(4), 266– 272. https://doi.org/10.1111/josh.12373

20. S. Mobarak, A., Afifi, R., &Qulali, A. (2015). First Aid Knowledge and Attitude of Secondary School Students in Saudi Arabia. Health, 07, 1366–1378. https://doi.org/10.4236/health.2015.710151

21. Singh, A., Mansuri, S., Chaudhari, A., Brahmbhatt, N., Bhabhor, H., &Talsania, N. (2015). An Interventional Study on Awareness Regarding First Aid and Fire Safety Among the Second Year Undergraduate Medical Students of BJ Medical College, Ahmedabad. Community Medicine, 3(4), 4.

22. Joseph, N., Narayanan, T., bin Zakaria, S., Nair, A. V., Belayutham, L., Subramanian, A. M., &Gopakumar, K. G. (2015). Awareness, attitudes and practices of first aid among school teachers in Mangalore, south India. Journal of primary health care, 7(4), 274-281.

23. Shabani, S. K. and J. S. (2015). Evaluation of Physical Education Teachers in Use of First Aid in Schools Sports. Academic Journal of Psychological Studies, 4(3). Retrieved from http://worldofresearches.com/ojs-2.4.4-1/index.php/ ajps/article/view/62

24. De Buck, E., Van Remoortel, H., Dieltjens, T., Verstraeten, H., Clarysse, M., Moens, O., &Vandekerckhove, P. (2015). Evidence-based educational pathway for the integration of first aid training in school curricula. Resuscitation, 94, 8–22. https://doi.org/10.1016/j.resuscitation. 2015.06.008

25. Dasgupta, A., Bandyopadhyay, L., & Das, M. (2014). Effectiveness of health education in terms of knowledge acquisition on first-aid measures among school students of a rural area of West Bengal. Med Res Chron, 1(2), 84- 91.

26. Salminen, S., Kurenniemi, M., Råback, M., Markkula, J., &Lounamaa, A. (2014). School Environment and School Injuries. Frontiers in Public Health, 1. https://doi.org/10.3389/fpubh.2013.00076

27. Emerich, K., Wlodarczyk, P., &Ziolkowski, A. (2013). Education of Sport University students regarding first-aid procedures after dental trauma. Eur J Paediatr Dent, 14(1), 37-41.

28. Ozkan, S. Y. (2013). Comparison of Peer and Self-Video Modeling in Teaching First Aid Skills to Children with Intellectual Disability. Education and Training in Autism and Developmental Disabilities, 48(1), 88–102.

29. Davies, M., Maguire, S., Okolie, C., Watkins, W., & Kemp, A. M. (2013). How much do parents know about first aid for burns?. Burns, 39(6), 1083- 1090.

30. Graham, H. E., Bache, S. E., Muthayya, P., Baker, J., & Ralston, D. R. (2012). Are parents in the UK equipped to provide adequate burns first aid?. Burns, 38(3), 438-443.

31. Bollig, G., Myklebust, A. G., &Østringen, K. (2011). Effects of first aid training in the kindergarten - a pilot study. Scandinavian Journal of Trauma, Resuscitation and Emergency Medicine, 19, 13. https://doi.org/10.1186/ 1757-7241-19-13.

32. Lippmann, J., Livingston, P., &Craike, M. J. (2011). Comparison of Two Modes of Delivery of First Aid Training Including Basic Life Support. Health Education Journal, 70(2), 131–140. https://doi.org/10.1177/00178969 10386208.

33. Carruth, A. K., Pryor, S., Cormier, C., Bateman, A., Matzke, B., & Gilmore, K. (n.d.). Evaluation of a School-Based Train-the-Trainer Intervention Programme to Teach First Aid and Risk Reduction Among High School Students. Journal of School Health, 80(9), 453–460. https://doi.org/ 10.1111/j.1746-1561.2010.00527.x

34. Bhatia, V., Puri, S., Mangat, C., & Kaur, A. (2010). An intervention study to strengthen first aid care in schools of Chandigarh, India. Int J Fam Pract, 8(1), 1-8.

35. Dan, M.M., Sarmah, P., Vana, D.R. and Adapa D., 2018. Wound Healing: Concepts and Updates in Herbal Medicine. International Journal of Medical Research & Health Sciences, 7(1), pp. 170-181.

36. Uzoagu, A., Okonkw, O. and Luisa, A., 2017. Diabetes and Wound Angiogenesis, International Journal of Molecular Sciences, 18 (7), pp. 14-19.

37. Salazar, J.J., Ennis, W.J. and Koh T.J., 2016. Diabetes Medications: Impact on Inflammation and Wound Healing. Journal of Diabetes Complications, 30 (4), pp. 746–752.

38. Lai, J.C.Y., Lai, H.W., Rao, N.K. and Ng, S.F., 2016. Treatment for diabetic ulcer wounds using fern tannin optimized hydrogel formulation

with antibacterial and antioxidative properties. Journal of Ethnopharmacology, 189, pp. 277-289.
39. Ghabaee, D.N.Z., Ebrahimzadeh, M.A., Akbari, J. and Amiri, F.T., 2017. Wound healing activity of Sambucus ebulus. International Journal of Pharmaceutical Sciences & Research, 8(1), pp. 132-135.
40. Gautam, M.K., Purohit, V., Agarwal, M., Singh, A. and Goel, R.K., 2014. "In Vivo Healing Potential of Aegle marmelos in Excision, Incision, and Dead Space Wound Models," The Scientific World Journal, 4, pp. 9.
41. Bhawar, S.B., Nirmal, S.A., Bhawar, H.S., Asane, G.S., Pal, S.C. and MandalSubhash C., 2014. Formulation and evaluation of herbal ointment for wound healing activity. International conference cum exhibition on drug discovery and development from natural resources, At Aizawl, Mizoram feburary, pp. 102-104.
42. Singh, H. and Sharma, S.K., 2013. Evaluation of wound healing potential of Jatropha gossypifolia Linn. Root extracts in normal and diabetic rats. International Journal of Phytomedicine, 5 (3), pp. 308-313.
43. Rajan, D.S., Rajkumar, M., Kumarappan, C. and Kumar, K.L.S., 2013. Wound healing activity of an herbal ointment containing the leaf extract of Ziziphus Mauritiana Lam. African journal of pharmacy and pharmacology, 7(4), pp. 98- 103.
44. Farahpour, M.R., 2012. Evaluation of the wound healing activity of an ethanolic extract of Ceylon cinnamon in mice. Veterinarni Medicina, 57(1), pp. 53-57
45. Hassan, S.A., Barthwal, R., Nair, M.S. and Haque, S.S., 2012. Aqueous Bark Extract of Cinnamomum Zeylanicum: A Potential Therapeutic Agent for Streptozotocin-Induced Type 1 Diabetes Mellitus (T1DM) Rats, Tropical Journal of Pharmaceutical Research June, 11 (3) pp. 429-435.
46. Pandey, I.P., Ahmed, F.A., Chhimwal, S. and Pandey S., 2012. Chemical Composition and Wound healing activity of Volatile oil of Leaves of Azadirachta indica A.juss Advances in Pure and Applied Chemistry, 1(3), pp. 62 -66.
47. Masih, Shobha & Sharma, Rajesh & Atul, Kumar. (2014). Knowledge and practice of primary school teachers about first aid management of selected minor injuries among children. International Journal of Medicine and Public Health. 4. 10.4103/2230-8598.144114.. Knowledge and practice of primary school teachers about first aid management of selected minor injuries among children. International Journal of Medicine and Public Health. 4. 10.4103/2230-8598.144114.
48. Naimer, Sody. (2014). A Review of Methods to Control Bleeding from Life-Threatening Traumatic Wounds. Health. 06. 479-490. 10.4236/health.2014.66067.
49. Hoogenboom, Barbara & Smith, Danny. (2012). Management of bleeding and open wounds in athletes. International journal of sports physical therapy. 7. 350-5.
50. Zwislewski, Adam & Nanassy, Autumn & Meyer, Loreen & Scantling, Dane & Jankowski, Marcin & Blinstrub, Gail & Grewal, Harsh. (2019). Practice makes perfect: The impact of Stop the Bleed training on hemorrhage control knowledge, wound packing, and tourniquet application in the workplace. Injury. 50. 10.1016/j.injury.2019.03.025.
51. Palmer, Lee. (2022). Hemorrhage control Proper application of direct pressure, pressure dressings, and tourniquets for controlling acute life-threatening hemorrhage. Journal of Veterinary Emergency and Critical Care. 32. 32-47. 10.1111/vec.13116.
52. Behrens, Adam & Sikorski, Michael & Kofinas, Peter. (2014). Hemostatic strategies for traumatic and surgical bleeding. Journal of biomedical materials research. Part A. 102. 10.1002/jbm.a.35052.
53. Berry, David & Seitz, S & Payne, Ellen. (2014). Use of Advanced Bleeding Control Mechanisms in Athletic Training: A Shift in the Thought Process of Prehospital Care Part 1: Tourniquets. Athletic Training Education Journal. 9. 10.4085/0903142.
54. Lawson, Kevin & Ayala, Alfonso & Morin, Matthew & Latt, Daniel & Wild, Jason. (2018). Ankle Fracture-Dislocations: A Review. Foot & Ankle Orthopaedics. 3. 247301141876512. 10.1177/2473011418765122.
55. Leipman, Jessica & Shahriar, Rajin. (2023). Effect of the COVID-19 Pandemic on Injuries Related to Individual and Team Sports: An Analysis of the NEISS Database Between 2017 and 2021. Orthopaedic Journal of Sports Medicine. 11. 10.1177/23259671231205317.
56. Bhaskara, K & Ts, Padmanabha & Nandini, Tripti & Sindhu,. (2014). Pattern of fractures and dislocations in a tertiary care hospital, North East Karnataka. International Journal of Medical Research & Health Sciences. 3. 847. 10.5958/2319-5886.2014.00012.5.
57. Yaradılmış, Yüksel. (2020). Injury mechanisms of ankle fractures with dislocation and analysis of differences on functional outcome. Turkish Journal of Trauma and Emergency Surgery. 26. 10.14744/tjtes.2020.57034.
58. Ribeiro, Hugo & R, Teixeira & P, Fernandes & A, Nunes & Sousa, José & R, Almeida. (2018). Thoracic Fracture-Dislocations without Neurologic Injury: 2 Cases Report and their Literature Review. Journal of Spine. 07. 10.4172/2165-7939.1000425.
59. Cao, Mu-Min & Zhang, Yuan-Wei & Hu, Sheng-Ye & Rui, Yun. (2022). A systematic review of ankle fracture-dislocations: Recent update and future prospects. Frontiers in Surgery. 9. 10.3389/fsurg.2022.965814.

60. Fok, Kevin & Cheung, Jason. (2019). Traumatic bilateral L4-5 facet fracture dislocation: A case presentation with mechanism of injury. BMC Musculoskeletal Disorders. 20. 10.1186/s12891-019-2921-5.
61. Braaten, Jacob & Banovetz, Mark & Braaten, Marco & Kennedy, Nicholas & LaPrade, Robert. (2023). Increased Risk of Fracture, Dislocation, and Hospitalization Are Associated With Collision in Contact Sports. Arthroscopy Sports Medicine and Rehabilitation. 5. 10.1016/j.asmr.2023.100781.
62. Moracia, Inmaculada & Rodríguez-Merchán, E.. (2019). Lisfranc fracture-dislocations: Current management. EFORT Open Reviews. 4. 430-444. 10.1302/2058-5241.4.180076.
63. Salaria, Amit & Vatsyan, Kuldeep & Kalia, Sandeep & Gupta, Lokesh & Rathore, Lakshya & Katoch, Punit. (2023). Ipsilateral Knee Dislocation and Ankle Fracture Dislocation. Journal of Orthopaedic Case Reports. 13. 112-116. 10.13107/jocr.2023.v13.i11.4026.
64. Tantigate, Direk & Ho, Gavin & Kirschenbaum, Joshua & Bäcker, Henrik & Asherman, Benjamin & Freibott, Christina & Greisberg, Justin & Vosseller, J.. (2019). Functional Outcomes After Fracture-Dislocation of the Ankle. Foot & Ankle Specialist. 13. 193864001982670. 10.1177/1938640019826701.
65. Stannard, James. (2016). Fracture Dislocation of the Knee. Journal of Knee Surgery. 29. 10.1055/s-0036-1583177.
71. /s40463-020-00485-8.
66. Gaheer, Rajinder & Ferdinand, Rupert. (2011). Fracture Dislocation of Carpometacarpal Joints: A Missed Injury. Orthopedics. 34. 399. 10.3928/01477447-20110317-29.
67. Thiagarajan, Balasubramanian. (2012). Epistaxis. ENT SCHOLAR.
68. Tunkel, David & Anne, Samantha & Payne, Spencer & Ishman, Stacey & Rosenfeld, Richard & Abramson, Peter & Alikhaani, Jacqueline & Benoit, Margo & Bercovitz, Rachel & Brown, Michael & Chernobilsky, Boris & Feldstein, David & Hackell, Jesse & Holbrook, Eric & Holdsworth, Sarah & Lin, Kenneth & Lind, Meredith & Poetker, David & Riley, Charles & Monjur, Taskin. (2020). Clinical Practice Guideline: Nosebleed (Epistaxis). Otolaryngology Head and Neck Surgery. 162. S1-S38. 10.1177/0194599819890327.
69. Saleem, Ahmed & Alahwal, Abdullah & Al-Sayed, Ahmed & Bin-Manie, Manal & Marzouki, Hani. (2018). Epistaxis: What Do People Know and What Do They Do?. Journal of Nature and Science of Medicine. 1. 10.4103/JNSM.JNSM_10_18.
70. Sowerby, Leigh & Rajakumar, Chandheeb & Davis, Matthew & Rotenberg, Brian. (2021). Epistaxis first-aid management: A needs assessment among healthcare providers. Journal of Otolaryngology - Head & Neck Surgery. 50. 10.1186