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A Quasi Experimental Study to Assess the Effectiveness of Basic First Aid Training Programme in Terms of Knowledge And Skills Among Students in Selected Schools of Gurugram

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Abstract:
Introduction: This quasi-experimental study aimed to evaluate the effectiveness of a Basic First Aid Training Program among students in selected schools of Gurugram, focusing on both knowledge acquisition and practical skills development.
Objective: The research involved a pre-test/post-test design with an intervention group that received the first aid training and a control group without any intervention.
Methods: The sample comprised students from diverse backgrounds in selected schools of Gurugram, ensuring a representative mix of participants. The Basic First Aid Training Program was meticulously designed, incorporating theoretical knowledge sessions and hands-on practical training. The curriculum covered essential first aid techniques such as cardiopulmonary resuscitation (CPR), wound care, choking response, and emergency response protocols.
Results: The finding of the study showed that pre to posttest was improves gradually and the mean difference shows the result was statistically significant. There was an association between the education of mother with knowledge and skills of basic first aid among students.
Conclusion: Basic first aid training programme shows effectiveness on knowledge and skills among the school students. The present study was intended to assess the effectiveness of basic first aid knowledge and skills training in school students of schools of Gurugram.

Keywords: First aid training programme, knowledge, skill

Background: First aid is the initial and first action taken by a person to assist a person who is suffering from a mild or significant disease or injury. The first type of care is that which is given to preserve life, stop a person's condition from getting worse, or hasten their recovery. Prior to the assistance of a medical professional, first aid involves initial interventions in critical conditions. Before a medical team comes, it entails doing CPR (cardiopulmonary resuscitation) and finishing the care of any minor wounds or cuts.

First aid can be administered by anyone with a basic understanding of medicine. The minimal standard of first aid for particular circumstances is specified by law, regulation, or other guidelines in many nations where first aid is provided. During this particular training at-work equipment, first aid coverage at public events, and required first aid instruction in schools are all requirements.[1]

School-related injuries are among the most serious health issues worldwide because they can result in fatalities or severe disabilities that last a lifetime. Therefore, with these injuries, first aid is crucial.[2] Given that youngsters spend a lot of time in schools and are exposed to leisure activities, health issues are more common there. Children in this stage of development are always seeking out new experiences, and as a result, they are susceptible to mishaps like falls, injuries, bruising, drownings, and burns. Schools provide a venue for implementing accident prevention measures and offering first aid.[3]

Unintentional injuries account for roughly 7.2% of all causes of death and 6.3 million disability adjusted life years (DALYs) among children under the age of 14, according to the National Institute of Mental Health and Neurosciences (NIMHANS). Children are especially prone to accidents and injuries, which can lead to fractures, bleeding, fainting, or drowning, according to Sunil Kumar D et al. According to the World Health Organization (WHO) Injuries constitute a significant contributor to illness and death in individuals below the age of 18. Approximately 8,75,000 children die from accidents each year, 10 million receive medical care for non-fatal injuries, and many have disabilities that have long-term effects.[4]

Encouraging most schoolchildren to undergo training in first aid and Basic Life Support (BLS) is crucial for establishing a survival chain in the event of a life-threatening accident. Typically, these students possess limited knowledge of first aid.

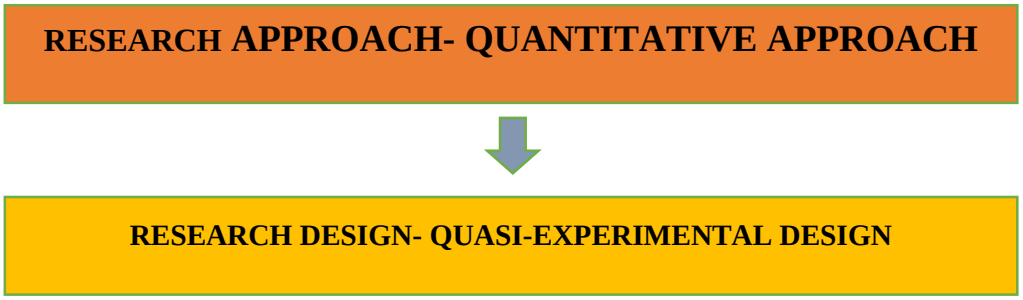
BLS is a crucial part of emergency care that must be given to all cardiac arrest victims without specific contraindications until they can receive complete medical attention in hospitals. In the same direction, but first aid professionals should receive training so they have the ability to swiftly and calmly assess a situation, address life-threatening circumstances while ensuring their own safety, seek medical assistance, and call for an ambulance in case of a severe injury or illness.[5]

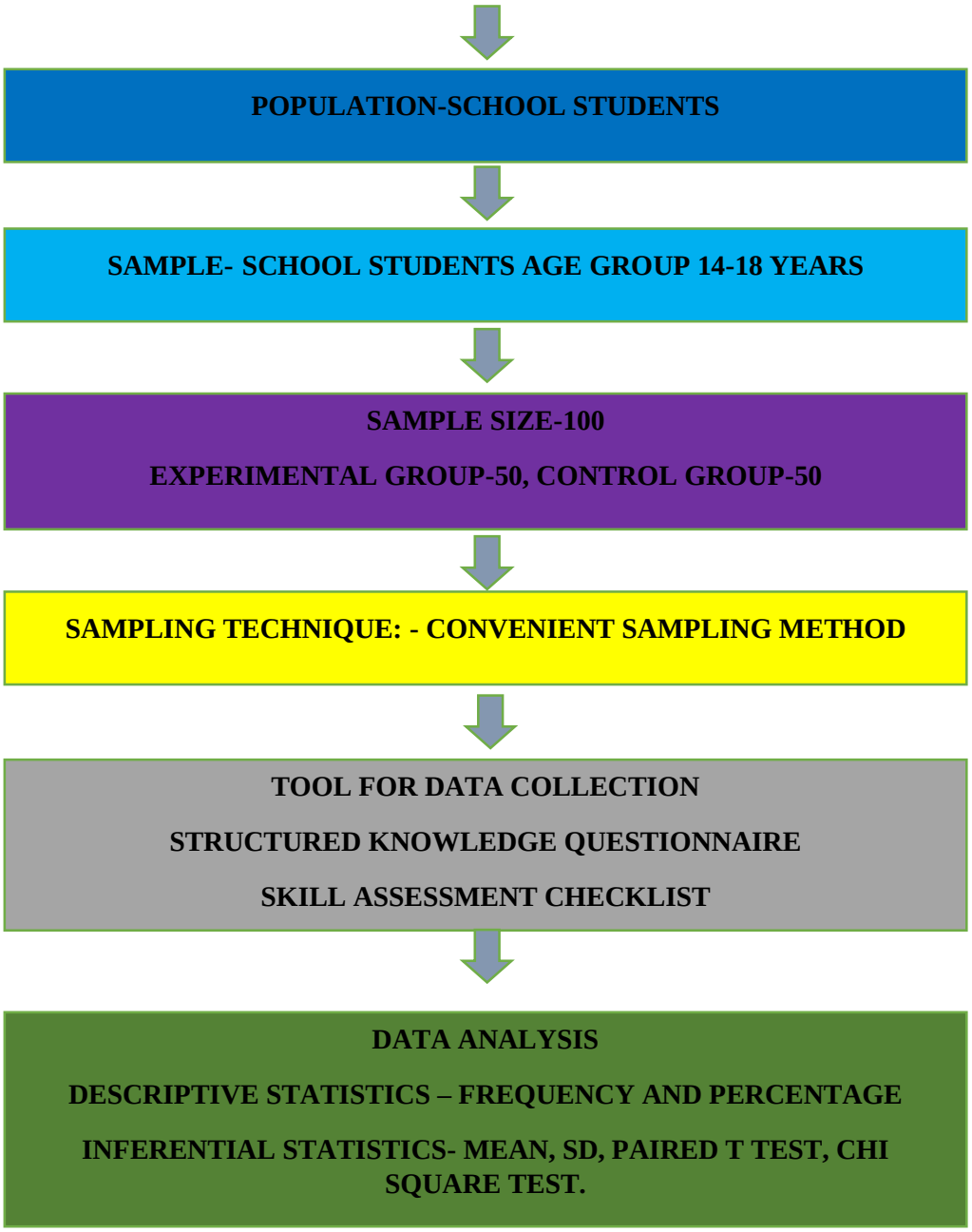
Research Question: To assess the effectiveness of basic first aid training programme in terms of knowledge and skills among students in selected schools of Gurugram.

Objectives: To determine the association between post- test score of knowledge and skills with selected socio-demographic variables among students in selected schools of Gurugram.

Methodology: The methodology is a methodical, theoretical investigation of the approaches used in a particular field of study. It entails the theoretical investigation of the body of procedures and guiding ideas connected to a field of knowledge.

Flow chart of the study's research design





Variables under study

In this investigation, the variables were:

- **Dependent variable** – Student knowledge and abilities regarding first aid
- **Independent variables**- First aid training programme
- **Demographic variables –** Age, gender, religion, education, place of residence, kind of family, mother's and father's educational attainment and ever attended training on first aid.

Setting of the study

The present study was conducted in M. D School (Mankrola) and Vinay Sr. Sec. School (Budhera).

Description of the area:

The present study was conducted in two areas of Gurugram i.e., Mankrola and Budhera.

Population

The population is the entire group of people or subjects who satisfy the researcher's study criteria, which can be any collection of people, things, or measurements that share observable characteristics. The study's target population consisted of nursing officers.

Target Population: - The entire population that piques a researcher's interest and to which she hopes to apply the findings of her study is referred to as the target population. The study's target population consisted of schoolchildren in the 14–18 age range.

Accessible Population: - The aggregate of cases that meet predetermined inclusion or exclusion criteria and are available for study is referred to as the accessible population. Schoolchildren in attendance at the time of the study comprised the accessible population for this investigation.

Sample and sampling techniques: According to Polit and Hungler "A sample is a portion of the population chosen to take part in a study. Selecting a sample of the population to serve as a representative sample of the entire population is known as sampling. By means of sampling, precise deductions or generalizations can be made based on the meticulous examination of variables within a comparatively limited segment of the population. The study's sample consisted of schoolchildren. The term "sample size" describes the total number of study participants. There were two groups in the current study: an experimental group (50) and a control group (50).

The sample design is a predetermined strategy for getting a sample from the sampling frame. Non-probability (purposive sampling) method was used in the current investigation because it ensures a representative sample.

Results: The process of analysis involves categorizing, ordering, manipulating, and summarizing data to address a specific research question. On the other hand, interpretation of results refers to the communication of facts, findings, measurements, and observations derived from the analysis. To attain meaningful research outcomes, the collected data must undergo a systematic and organized process of analysis. This chapter focuses on the systematic analysis and interpretation of the data collected, aiming to evaluate the effectiveness of a basic first aid training program concerning the knowledge and skills of students in chosen schools in Gurugram. The collected data were coded and a master sheet was prepared for systemic analysis of results as per the following objectives of the study.

Table.1. Distribution of study participants according to socio-demographic variables.

	Variables	**Experimental (%)**	**Control (%)**
Age	15 Years	32(64%)	33(66%)
	16 Years	17(34%)	9(18%)
	17 Years	1(2%)	7(14%)
	18 Years	0(0%)	1(2%)
Gender	Male	31(62%)	19(38%)
	Female	19(38%)	31(62%)
Religion	Hindu	50(100%)	49(98%)
	Islam	0(0%)	1(2%)
	Sikh	0(0%)	0(0%)
	Christian	0(0%)	0(0%)

	Others	0(0%)	0(0%)
Education	9th Standard	15(30%)	31(62%)
	10th Standard	33(66%)	1(2%)
	11 Standard	2(4%)	11(22%)
	12th Standard	0(0%)	7(14%)
Area of living	Urban	13(26%)	3(6%)
	Rural	26(52%)	40(80%)
	Semi-urban	2(4%)	4(8%)
	Semi-rural	9(18%)	3(6%)
Type of family	Joint	19(38%)	24(48%)
	Nuclear	31(62%)	26(52%)
Education of father	Matric	21(42%)	14(28%)
	Intermediate	13(26%)	12(24%)
	Graduate	10(20%)	19(38%)
	Post Graduate	1(2%)	4(8%)
	Other	5(10%)	1(2%)
Education of mother	Matric	29(58%)	20(40%)
	Intermediate	8(16%)	11(22%)
	Graduate	5(10%)	9(18%)
	Post Graduate	4(8%)	5(10%)
	Other	4(8%)	5(10%)
Ever attended training on first aid	Yes	5(10%)	1(2%)
	No	45(90%)	49(98%)

In this present study, table 1 shows that there were almost same number of variables in experimental and control group regarding socio-demographic statistics. Therefore, it may be suggested that there were no biased figures in our study.

Table.2. Examines the correlation between post-test knowledge of the experimental group and specific demographic variables.

Variable	**Category**	**Post test Knowledge**		**χ^2-value**	**p-value**
		Inadequate	Adequate		
Age	15 Years	0	32	1.98	0.371
	16 Years	1	16		
	17 Years	0	1		
	18 Years	-	-		
Gender	Male	0	31	1.66	0.197
	Female	1	18		
Religion	Hindu	1	49	-	-
	Islam	-	-		

	Sikh	-	-		
	Christian	-	-		
	Others	-	-		
Education	9th Standard	0	15	0.526	0.769
	10th Standard	1	32		
	11 Standard	0	2		
	12Tth Standard	-	-		
Area of living	Urban	0	13	4.65	0.199
	Rural	0	26		
	Semi-urban	0	2		
	Semi-rural	1	8		
Type of family	Joint	0	19	0.625	0.429
	Nuclear	1	30		
Education of father	Matric	0	21	4.08	0.395
	Intermediate	0	13		
	Graduate	1	9		
	Post Graduate	0	1		
	Other	0	5		
Education of mother	Matric	0	29	11.73	0.019*
	Intermediate	0	8		
	Graduate	0	5		
	Post Graduate	1	3		
	Other	0	4		
Ever attended training on first aid	Yes	0	5	0.113	0.736
	No	1	44		

Data in the table 2 has shown that:

Age: Table 2 shows no association between age group and their knowledge levels. In the present study, it was found that in the age 15years, 64% are having adequate knowledge skills. For age group 16years, the knowledge levels i.e., inadequate & adequate was 2% and 32% respectively.

Sex: In the present study there is no association between gender and their knowledge skill by their levels. It was found that 62% males had adequate knowledge. Whereas in females 2 had inadequate and 36 had adequate knowledge skills.

Religion: 2% had inadequate knowledge and 98% had adequate knowledge who all are belonged to Hindus community.

Educational Status: In the present study no association between education and knowledge levels. It was found that, the study participants of 9th class,30% had adequate knowledge. In the category of 10th standard, 2% having inadequate and 64% having adequate knowledge skills. In 11th class, the frequency was distributed accordingly by 4% have adequate knowledge.

Area of living: There is no association between area of living and their knowledge skill by their levels 26% people of urban have adequate knowledge skills. 26% of rural and 4% of semi urban and 16% of semi-rural having adequate knowledge skills. Only 2% of semi-rural area have inadequate knowledge.

Type of family: there is no association between family type and their knowledge skill by their levels 38% of joint and 60% of nuclear family people have adequate knowledge skills and 2% had inadequate knowledge levels by their skills.

Education of father. No association between education of father and knowledge levels. 42% matric, 26% intermediate and 18% graduate fathers had adequate knowledge skills whereas 2% graduate passed had inadequate knowledge skills.

Education of Mothers: In the present study, there is an association between education of mother and knowledge levels. 58% matric, 16% intermediate,10% graduate mothers, 6% post graduate and 8% from others qualification had adequate knowledge skills whereas 2% post graduate passed had inadequate knowledge skills.

Ever attended training on first aid: There is no association between training on first aid and their knowledge skill by their levels 88% participants never ever attended training on first aid but who had adequate knowledge skills whereas 10% attend the training had adequate knowledge skills and only 2% non-attended had inadequate knowledge skills by their levels.

Table.3. The focus shifts to exploring the relationship between post-test knowledge of the control group and selected demographic variables.

Variable	**Category**	**Post Knowledge**			**χ^2-value**	**p-value**
		Poor	Inadequate	Adequate		
Age	15 Years	2	31	0	5.64	0.465
	16 Years	0	8	1		
	17 Years	0	7	0		
	18 Years	0	1	0		
Gender	Male	0	19	0	1.96	0.376
	Female	2	28	1		
Religion	Hindu	2	46	1	0.06	0.968
	Islam	0	1	0		
	Sikh	-	-	-		
	Christian	-	-	-		

	Others	-	-	-		
Education	9th Standard	1	30	0	4.85	0.563
	10th Standard	0	1	0		
	11 Standard	1	9	1		
	12th Standard	0	7	0		
Area of living	Urban	0	3	0	0.798	0.992
	Rural	2	37	1		
	Semi-urban	0	4	0		
	Semi-rural	0	3	0		
Type of family	Joint	1	23	0	0.943	0.624
	Nuclear	1	24	1		
Education of father	Matric	0	13	1	4.00	0.857
	Intermediate	1	11	0		
	Graduate	1	18	0		
	Post Graduate	0	4	0		
	Other	0	1	0		
Education of mother	Matric	0	19	1	7.47	0.487
	Intermediate	0	11	0		
	Graduate	1	8	0		
	Post Graduate	0	5	0		
	Other	1	4	0		
Ever attended training on first aid	Yes	0	1	0	0.065	0.968
	No	2	46	1		

Data in the table 3 has shown that:

Age: Table 3 shows no association between age group and their knowledge levels. In the present study, it was found that in the age 15years, 4% had poor,62% are having inadequate knowledge skills. For age group 16years, the knowledge levels i.e., inadequate & adequate was 6% and 2% respectively. 14% people had inadequate knowledge who are belonged to 17 years age and only 2% from 18 years having inadequate knowledge skills.

Sex: In the present study there is no association between gender and their knowledge skill by their levels. It was found that 38% males had inadequate knowledge. Whereas in females, 4% had poor,56% had inadequate and 2%had adequate knowledge skills.

Religion: 2% had poor ,92% had inadequate knowledge and 2% had adequate knowledge who all are belonged to Hindus community and 2% Islamic had inadequate knowledge skills.

Educational Status: No association between education and knowledge levels. It was found, the study participants of 9th class,2% had poor, 60% had inadequate knowledge. In the category of 10th standard, 2% having inadequate knowledge skills. In 11th class, the frequency was distributed accordingly by 1% of poor,18% had inadequate and 2% have adequate knowledge. 14% from 12th class who have inadequate knowledge skills.

Area of living: There is no association between area of living and their knowledge skill by their levels 6% people of urban have inadequate knowledge skills. 74% of rural and 8% of semi urban and 6% of semi-rural having inadequate knowledge skills. Only 4% and 2% of rural area have poor and adequate knowledge respectively.

Type of family: There is no association between type of family and their knowledge skill by their levels 46% of joint and 48% of nuclear family people have inadequate knowledge skills and 2% had poor knowledge on both type of family and 2% nuclear family had adequate knowledge levels by their skills.

Education of father. No association between education of father and knowledge levels. 26% matric, 22% intermediate ,36% graduate, 8% post graduate and 2% others qualified fathers had inadequate knowledge skills whereas 2% intermediate and graduate passed had poor knowledge skills. 2% matric passed had adequate knowledge skills.

Education of Mothers: No association between education of mother and knowledge levels. 38% matric, 22% intermediate,16% graduate mothers, 10% post graduate and 8% from others qualification had inadequate knowledge skills whereas 2% graduate and others passed had poor knowledge skills. 2% matric mothers had adequate knowledge skills by their levels.

Ever attended training on first aid: 86% participants never ever attended training on first aid but who had inadequate, 4% poor and 2% had adequate knowledge skills whereas 2% attend the training had inadequate knowledge skills by their levels.

Table.4. Comparison of pre and post knowledge of within experimental and control groups.

	Pre Mean ± SD	**Post Mean ± SD**	**Mean difference**	**t-value**	**p-value**
Experimental	13.84±2.53	25.28±1.71	11.44	28.66	0.001*
Control	13.32±2.47	14.4±2.47	1.08	6.4	0.001*

**=Significant at 0.05 level.*

In this pretest study, table 4 depicts the mean-score of pre-tests in experimental-group was calculated as 13.84 with 2.53 standard deviation. The score in post test was improves gradually and then calculated as 25.28 with 1.71 variation from the mean. The mean difference shows the result was statistically significant. Similarly, in the control-group mean value at pre-test 13.32 and then post-test it was 14.40 with 2.47 SD. The mean difference was not improved as such in experimental group with 1.08 value however the result was 0.05 level of significance.

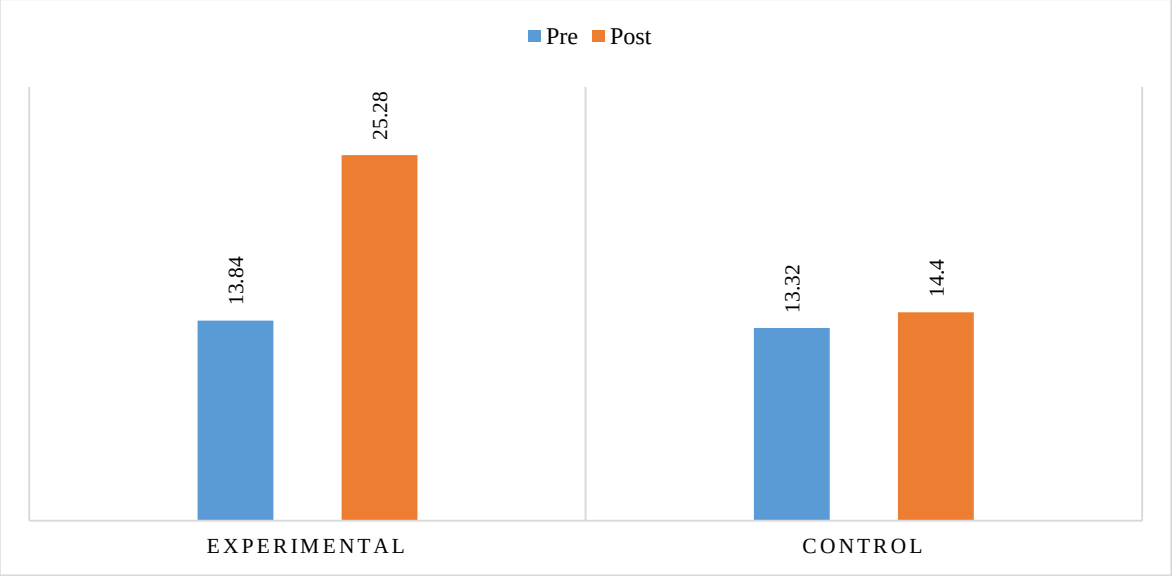


Figure 4.1. shows the comparison of pre and post test of experimental and control within the group

DISCUSSION:

- This study (Table 1) it found that the distribution of study participants according to age. Majority of the participants from 15 years with 66.00% in control and 64% in experimental group followed by 18% and 34% in 17 years and no participants belonged to the age group 18 years in experimental group which is similar to a study by Buck De E et al. (2020)[8], Mehree S et al (2020)[9], Rossctto A et al (2020)[10].
- 62% are males in experimental and 38% in control group while 62% & 32% female in control and experimental group respectively which is almost similar in Plischewski H et al(2021)[6], Mirza A M et al (2017)[14].
- Majority of study participants belonged to Hindus, 98% in control & 100% in experimental group followed by Islam 2% in control group. Most of the studies are conducted in such an area where the religious participants are same or different in some other places.
- According to educational status majority of study participants in control group with 62% belonged to 9th class while in experimental group 66% belonged to 10th class followed by 22% of 11th class in control and 30% in 9th class on experimental group. Qualification of the study participants are similar to these studies conducted by Buck De E et al. (2020)[8], Mehree S et al (2020)[9], Rossctto A et al (2020)[10].
- 52% people living in rural area of experimental group and 80% of control group followed by 26% located in urban of experimental group and 8% people of control group located in semi urban. 18% people of experimental group living in semi-rural area.
- According to family type, 62% people of experimental group belonged to nuclear family and 52% people of control group. 48% people of control group belonged to joint family and 38% of experimental group belonged to the same.
- However, the father educational level,42% were belonged to matric passed in experimental group whereas 38% graduate passed in control group. 28% father qualifications were matric passed in control group and 26% intermediate in experimental group. 20% graduate passed and 24% intermediate passed

fathers in experimental and control group respectively. It was noticed that parents education had lack of fist aid knowledge as in Naumeri F et al (2019)[5],Qureshi F M et al (2018)[12].

- Similarly, the educational level of mother,58% were belonged to matric passed in experimental group whereas 40% in control group followed by 22% mothers qualification was intermediate in control group and 16% in experimental group. 10% and 18% graduate passed in group respectively which is similar to Naumeri F et al (2019)[5],Qureshi F M et al (2018)[12]. Therefore, there is a critical need for campaigns focused on first aid knowledge, attitude and practice among the parents also.
- 90% participants of experimental group and 98% from control-group never ever attended training on first aid and 10% from experimental and 2% of control group agree that they attended the training on first aid. A study Naumeri F et al (2019)[5]findings was almost similar to our study that there were an association with prior understanding of first aid.
- In our study, table 2 shows, there is an association between the mother education and the knowledge of first aid. It may be suggested that if the parents are educated then there will be more chances of their children are more educated. As Quereshi F M et al. (2018)[12] revealed the same in their study however in control group, there were no socio demographic variables which is directly associated with knowledge of first aid and the checklist as well.
- In this present study, table 4 revealed the overall comparison of knowledge regarding first aid in pre and post test intervention in experimental and control group. It was found that, there was an improvement in pre to post intervention in both the groups which was more in an experimental group as compared to control group. Similar studies Plischewski H et al. (2021)[6], Cheng H.Y et al. (2021)[7], Mehreen S et al. (2020)9, Raeisi MA et al. (2020)[13] indicated notable quantitative improvements in the children's proficiency in administering first aid.
- A study was conducted by Panda CP et al. (2019)[11] confirmed a statistically significant difference in the pre- and post-education scores, underscoring the effectiveness of the first-aid training intervention which was almost similar to our study.

Conclusion:

The present study was intended to assess the effectiveness of basic first aid training programme in terms of knowledge and skills of school students in schools of Gurugram. The report of study found that there is improvement in knowledge of school students of experimental group after basic first aid training programme. Basic first aid training programme improves the skills and knowledge in school students and help them to save lives at the time of injury or accident. The findings of this study have potential implications for school safety programs and public health initiatives. By assessing the effectiveness of the Basic First Aid Training Program, the study aims to contribute valuable insights into the importance of incorporating comprehensive first aid education into school curricula. The outcomes could inform educational policies and interventions aimed at preparing students to respond effectively in emergency situations, thereby promoting a safer and more resilient school environment in Gurugram.

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