



# A Study To Assess The Effectiveness Of Technology-Based Instruction On Knowledge And Attitude Of First Aid Management Among College Students In A Selected College In Chennai.

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**Abstract:** The practice of first aid is rooted in the idea that prompt care and basic medical interventions administered in the early stages of an emergency can make a significant difference in the outcome. Objective: 1. To determine the difference between pre-test and post test score in knowledge and attitude of first aid management. 2. To evaluate the effectiveness of technology-based instruction on first aid management via post test score. 3. To determine the correlation between knowledge and attitude regarding first aid management in the post-test. 4. To find out the association of knowledge and attitude between selected demographic variables in the pre-test and post-test. Methodology: A quantitative research approach, one group pretest and post-test design was used. A total of 100 college students were selected from a college in Chennai, India, using purposive sampling. The investigator collected data using Self Structured questionnaire and five-point Likert scale. The data was analyzed using descriptive and inferential statistics. Results: The study found significant improvements in knowledge and attitudes towards first aid management among college students following technology-based instruction. Initially, 58% of students had inadequate knowledge and 42% had moderately adequate knowledge. After the intervention, 96% had adequate knowledge and 4% had moderately adequate knowledge. In terms of attitude, 77% of students initially had an unfavorable attitude, while 23% had a moderately favorable attitude. Post-intervention, 94% had a favorable attitude and 6% had a moderately favorable attitude. The paired "t" test results were statistically significant, with a value of  $t = 44.833$  for knowledge and  $t = 35.071$  for attitude, both at the  $p < 0.001$  level. Conclusion: The study's findings concluded that college students' knowledge and attitudes about first aid management were significantly improved after introducing technology-based instruction.

**Keywords-** College students, First aid management, Technology based instruction.

## I. INTRODUCTION

The world has transformed into an unpredictable and precarious environment. Mishaps and uncertainties have seamlessly integrated into our existence. Accidents are not random incidents; rather, they result from haste, lack of awareness, negligence, the vulnerabilities of childhood and old age, forgetfulness, and unconventional bravery. It is imperative that we contemplate these accidents and equip ourselves to respond promptly. The term "first aid" is derived from the concept of providing initial and immediate assistance to someone who has been injured or is experiencing a sudden illness. The practice of first aid is rooted in the idea that prompt care and basic medical interventions administered in the early stages of an emergency can significantly alter the course of events. It serves as crucial support in some situations, helping

the individual endure until professional assistance arrives. According to WHO, injuries both deliberate and connected to violence kill 4.4 million people globally year, accounting for approximately 8% of all fatalities. Three of the top five causes of death for those aged 5 to 29 are injury-related. For children, adolescents, and adults under 45, unintentional injuries constitute the primary cause of death in the United States. Similar to other nations, India has a high injury rate, with injuries ranking as the nation's second most prevalent factor in fatalities and permanent disabilities. India suffers from 0.15 million fatal traffic accidents and unintentional injuries per year. The significance of first aid in unintentional injuries is profound, as it plays a crucial role in providing immediate and essential care in the critical moments following an accident or injury. Injuries, including those from traffic accidents, murder, suicide, and other causes, account for eight of the top 15 causes of mortality worldwide for individuals between the ages of 15 and 29. College campuses can be dynamic environments where accidents or medical emergencies may occur. It is imperative for college students to acquire first aid skills due to the unpredictable nature of campus life and the diverse range of activities they engage in. Campus safety is enhanced when students possess the ability to provide immediate assistance in various settings, including dormitories, classrooms, and recreational areas. Beyond personal safety, learning first aid fosters a sense of responsibility and community well-being, aligning with the principles of global citizenship. In addition to potentially saving lives, these skills can contribute to a supportive and secure environment, empowering students to take on leadership roles during emergencies and making a favorable effect on the campus's general safety culture.

## II. LITERATURE REVIEW

Abdalla, A., et al. (2024) analyzed the effects of a first aid and basic life support instructional program on risk management through a quasi-experimental study. On a hundred pupils. After completing training in basic life support (BLS) and first aid (FA), the study sought to ascertain how Sudan University of Sciences and Technology mechanical engineering students handle threats in such situations. Before the intervention (a 13-lecture series), students' overall understanding of first aid and basic life support was poor (13.82), but it improved (to 95%) following the test. Between the pre- and post-tests, there existed statistically noteworthy variations. They concluded that the students' knowledge and practice of emergency medical care and basic life support were lacking before the intervention, and the training enhanced those competencies.

Almahmoud, K. A., et al. (2021) carried out a cross-sectional study in Riyadh city, Saudi Arabia to determine how well-versed non-healthcare practitioners were in first aid techniques. It was discovered that 21.7% performed poorly, 66.9% had an average score, and 11.4% had good understanding. A little over 24.4% of participants said they have previously administered first assistance to a person in need. But 84.8% of them relied solely on their own expertise and acted without any training. They came to the conclusion that participants did not know enough about first aid techniques to use them appropriately and without repercussions in emergencies.

Arasu, S., et al. (2020) carried out a cross-sectional survey to evaluate the awareness, understanding of and perceptions about first aid at an independent basic degree institution in Bangalore. Just 192 (52%) and 48 (13%) of the 370 students had previously attended a first aid seminar and first aid training. There have been insufficient opportunities for students to learn about first aid, despite their good awareness, attitude, and perceptions regarding the subject at hand. When given the chance, students showed a significant desire to participate in the first aid program.

## III. SCOPE OF THE STUDY

First aid plays a crucial role in minimizing fatalities, injuries, and the impact of both natural disasters and everyday emergencies. Its primary objective is to preserve life and prevent the situation from worsening. Not all catastrophes require the assistance of medical specialists; common people can intervene and perhaps save lives by administering first aid. Possessing basic first aid skills and the confidence to employ them can be instrumental in saving lives, and with proper training, anyone has the capacity to make a life-saving difference.

The study will make it feasible to determine the efficacy of technology-based instruction on knowledge and attitude of first aid management among college students. The study's findings will assist the investigator in motivating and improving college students' knowledge and attitude levels.

#### IV. RESEARCH METHODOLOGY

The research methodology denotes the overall structure for arranging the process of obtaining accurate and trustworthy data for the study purpose.

##### Research design:

Pre-experimental research design, one group pretest and post-test design, was used for this study.

##### Population and study samples:

The study population consists of college students. One hundred college students who met the requirements for inclusion were chosen as the sample size. The samples were selected by using a non-probability purposive sampling technique.

##### Data collection:

The B.Sc. Visual communication and Animation Department of the DR MGR Educational and Research Institute was selected for the study. Official approval was granted by the authorities to conduct the study. Between December 11, 2023, and January 10, 2024, data was collected. Using the purposive sampling technique, a total of 100 college students who met the inclusion criteria were chosen. In order to get the students' cooperation, the investigator introduced herself to them and built a strong rapport with them. The investigator guaranteed the participant's for the privacy of their response.

The participants were informed of the study's purpose in order to gain their complete cooperation and to ensure that they had adequate confidentiality. The demographic and pretest data was collected and Technology Based Instruction was introduced to the students and post test was conducted after three weeks to the same participants with the same questionnaire accordingly. The samples were co-operative throughout the study.

##### Description of the tool:

**Part I – Demographic variables:** It contained the students' demographic information, such as their sex, religion, residential area, source of health information, previous exposure to accidental emergencies.

**Part II:** College students' first aid management knowledge was evaluated using a self-structured questionnaire, which composed of 25 multiple choice questions. A score of one (1) was awarded for the right answer, while zero (0) was given for the incorrect response.

**Part III:** Ten positively worded statements on a five-point Likert scale was used to assess college students' attitudes on first aid management. Total score was 50.

#### V. RESULT AND DISCUSSION

Analysis is the process of gathering and examining the data to assess the hypotheses and provide an answer to the research topic. This chapter examines at data gathered from one hundred college students to determine how effectively technology-based instruction improves students' first aid management knowledge and attitudes.

The study findings showed that the demographic distribution revealed that 89% of participants were male and 11% were female. In terms of religion, 59% were Hindus, 29% Christians, 7% Muslims, and 5% belonged to other religions. Regarding their residential areas, 76% lived in urban areas, 23% in rural areas, and 1% in slum areas. Transportation methods to college included 44% using the bus, 33% public transport, 15% walking, 6% using their parent's car or bike, and 2% cycling. Information sources varied, with 52% obtaining information from the internet, 24% from school, 19% from family members, 4% from television programs, and 1% from newspapers or magazines. Exposure to accidental emergencies showed that 66% had not been exposed, while 34% had been exposed. Additionally, 52% had not witnessed others performing first aid, whereas 48% had witnessed. In terms of providing first aid, 72% had not given any, while 28% had administered first aid. These results are similar to Halawani et.al. (2019) where 20.2% of the students reported

having been in situations requiring cardiopulmonary resuscitation; however, 65.3% of these students had not performed first aid due to a lack of training, anxiety, or other reasons.

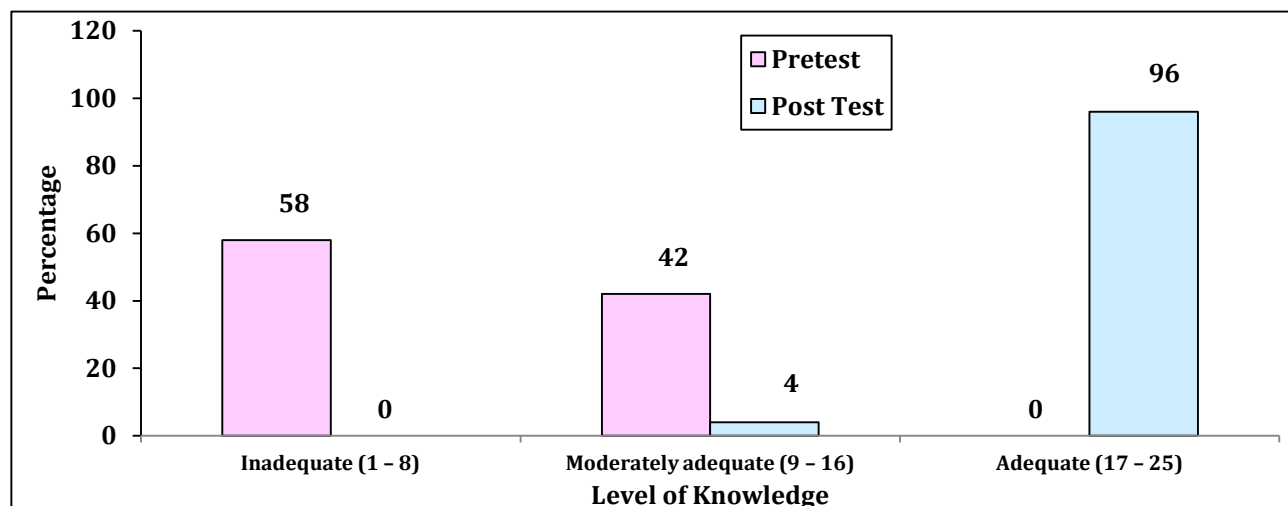


Fig 1: Percentage distribution of pretest and post-test level of knowledge regarding first aid management among college students.

Fig 1, shows that in the pretest, 58(58%) had inadequate knowledge and 42(42%) had moderately adequate knowledge regarding first aid management. Whereas in the post test, 96(96%) had adequate knowledge and 4(4%) had moderately adequate knowledge regarding first aid management among college students.

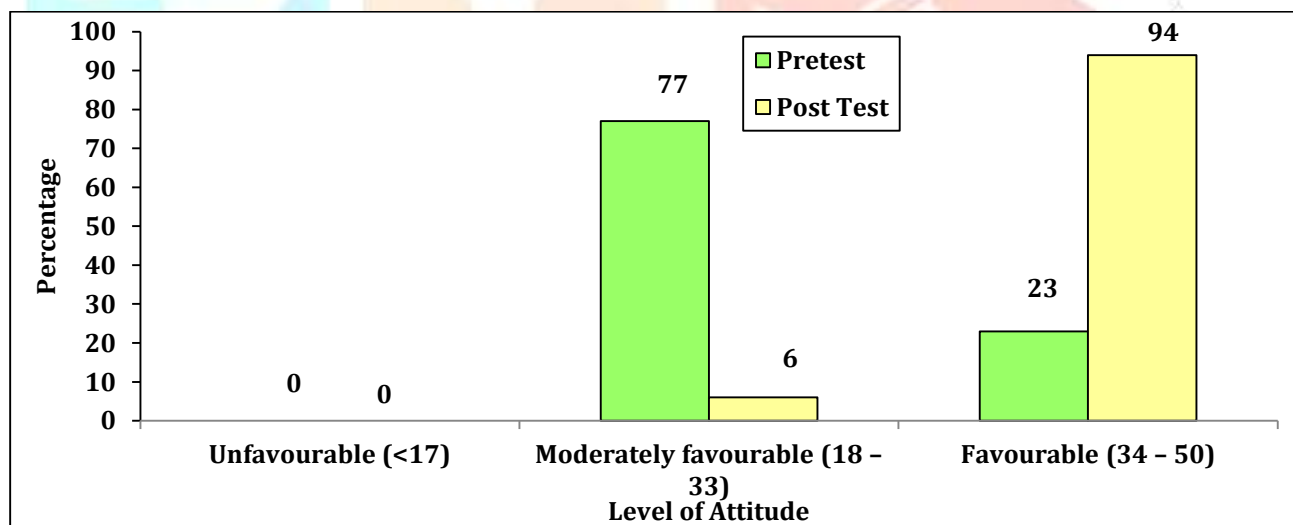


Fig 2: Percentage distribution of pretest and post-test level of attitude regarding first aid management among college students.

Fig 2, shows that in the pretest, 77(77%) had unfavorable attitude and 23(23%) had moderately favorable attitude regarding first aid management. Whereas in the post test, 94(94%) had favorable attitude and 6(6%) had moderately favorable attitude regarding first aid management among college students.

| Knowledge | Mean | S.D  | Mean              | Paired “t” test & p-value |
|-----------|------|------|-------------------|---------------------------|
|           |      |      | Difference &<br>% |                           |
| Pretest   | 8.62 | 3.41 | 15.30             | t = 44.833                |



| Post Test | 23.92 | 1.88 | (61.2%)             | p=0.0001, S***            |
|-----------|-------|------|---------------------|---------------------------|
| Attitude  | Mean  | S.D  | Mean Difference & % | Paired “t” test & p-value |
| Pretest   | 31.01 | 4.39 | 16.86               | t = 35.071                |
| Post Test | 47.87 | 4.35 | (33.72%)            | p=0.0001, S***            |

\*\*\*p&lt;0.001, S-

Significant

Table 1: Effectiveness of Technology Based Instruction on knowledge and attitude on first aid management among college Students.

The current study indicated that the mean score of knowledge about first aid management among college students increased from  $8.62 \pm 3.41$  in the pretest to  $23.92 \pm 1.88$  in the post-test, with a mean difference of 15.30, representing a 61.2% improvement. The paired “t” test value of  $t = 44.833$  was statistically significant at  $p < 0.001$ , demonstrating the effectiveness of Technology Based Instruction in enhancing students' knowledge. Similarly, the mean score of attitudes towards first aid management improved from  $31.01 \pm 4.39$  in the pretest to  $47.87 \pm 4.35$  in the post-test, with a mean difference of 16.86, or 33.72%. The paired “t” test value of  $t = 35.071$  was also statistically significant at  $p < 0.001$ , confirming that Technology Based Instruction was effective in improving students' attitudes towards first aid management. Ekaprasetia, F., et al. (2022) study on the impact of first aid guidelines (FAG) application on students' first aid skills, attitudes, and knowledge validated the aforementioned findings. It found that the intervention group outperformed the control group in terms of value difference, with a value of 2.91 (SD = 1.608), and indicated a statistically significant difference in the rise in knowledge variable following first aid education utilizing the FAG (First Aid Guidelines) application, with a value of  $p = 0.008$  (p-value  $< 0.05$ ).

The current study showed that post-test mean scores for knowledge and attitude were  $23.92 \pm 1.88$  and  $47.87 \pm 4.35$ , respectively. A positive correlation between knowledge and attitude was found, with an estimated Karl Pearson's correlation value of  $r = 0.462$ , which was statistically significant at the  $p < 0.001$  level. This demonstrates that the introduction of technology-based instruction led to simultaneous improvements in both knowledge and attitudes. The research correlates with Bashekah, K. A., et al. (2023) who carried out a cross-sectional online survey on 1135 members of the Saudi Arabian public to find out about first aid knowledge, attitudes, and related factors. 36 % of research participants stated that they had first aid training. The media was a frequently often mentioned for obtaining first aid knowledge. The average knowledge score of the study participants was 4.4 (SD: 2.8) out of 8 (55.0%), indicating a moderate level of first aid knowledge. The average attitude score of the study participants was 22.5 out of 28, which suggests that they had a favourable attitude on first aid. The study made it clear that if students are aware about first aid their attitude towards it also changes.

The current study revealed significant associations between certain demographic variables and the levels of knowledge and attitude regarding first aid management among college students. In the pre-test, students who had witnessed others performing first aid ( $\chi^2 = 15.925$ ,  $p = 0.0001$ ) and those whose source of health information was significant ( $\chi^2 = 12.387$ ,  $p = 0.015$ ) showed statistically significant associations with their knowledge levels at  $p < 0.001$  and  $p < 0.05$ , respectively. In the post-test, exposure to accidental emergencies ( $\chi^2 = 4.018$ ,  $p = 0.045$ ) was significantly associated with knowledge levels at  $p < 0.05$ . Regarding attitudes, the pre-test showed significant associations with the mode of transport to college ( $\chi^2 = 13.454$ ,  $p = 0.009$ ) and prior experience in giving first aid ( $\chi^2 = 8.658$ ,  $p = 0.003$ ), both at  $p < 0.01$ . In the post-test, having witnessed others performing first aid ( $\chi^2 = 5.892$ ,  $p = 0.015$ ) was significantly associated with attitude levels at  $p < 0.05$ . These findings indicate that Technology Based Instruction on first aid management was effective in enhancing both knowledge and attitudes among college students.

## VI. CONCLUSION

The current study evaluated the impact of technology-based instruction on college students' first aid management knowledge and attitudes among college students in a selected college in Chennai. After providing

the technology-based instruction (first aid basic app version 2.3.1), students' knowledge and attitudes about first aid management significantly improved. The research findings concluded that college students' knowledge and attitudes about first aid management were significantly improved by introducing technology-based instruction.

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