A study to assess the effect of Information Booklet on knowledge regarding Disaster Preparedness among students in selected government colleges of Kamrup metro, Assam.

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Abstract:
Background: Disaster occurrence is a global phenomenon. Disaster occurrence in any country affects its health and economic conditions. They can occur anywhere and anytime. It not only affect the health and well-being of the people but also large number of people are displaced, killed or injured subjected to greater risk of epidemics. In India, 59% of land mass is susceptible to seismic hazard; 5%of total geographical area is prone to floods; 8% of the total landmass is prone to cyclones and 70% of total cultivable area is vulnerable to drought.
Objectives: *The present study has been carried out to assess the pre-test and post-test level of knowledge regarding disaster preparedness among students in selected government colleges of Kamrup metro, Assam and also to find out the association between pre-test knowledge about disaster preparedness with selected demographic variables.*
Materials and methods*: Quantitative evaluative approach was used to assess the knowledge regarding disaster preparedness. A total of 220 college students were selected through proportionate stratified random sampling technique and data was collected using structured knowledge questionnaires. Descriptive and inferential statistics were used for data analysis.*
Results*: Out of 220 students, majority of the subjects 69 % had average knowledge, 15 % had poor knowledge and only 16 % had good knowledge in pre-test while 54.09 % of the subjects had good knowledge, 35.45 % had average knowledge and 10.45 % had poor knowledge in post-test. The mean post-test knowledge scores of the subjects regarding disaster preparedness (19.15) is higher than the mean pre-test score (14.09). SD of the post-test 7.3 was also found to be higher than the SD of the pre-test i.e. 4.8. Findings inferred that there is significant mean difference between the pre-test and post-test level of knowledge scores of the college students regarding disaster preparedness. The overall improved mean difference of knowledge obtained 5.06 and the calculated t value 9.19 is higher than tabulated value at degree of freedom 219 for 0.05 level of significance. The findings infer that it is statistically significant and it reflects that the information booklet was found effective. Chi square was computed to find out the association between pre-test knowledge scores and selected variables. No significant association was found between knowledge and selected variables such as age, standard, occupation of father, occupation of mother and source of information. However, significant P value witnessed in case of gender and religion of the students at 0.05 level of significance.*
Keywords*: College students, Knowledge, Disaster preparedness.*

I.   Introduction

Disasters are highly disruptive events that cause suffering, hardship, deprivation, injury and even death, as a result of direct injury, disease, the interruption of commerce and business and the partial or total destruction of critical infrastructure such as homes, hospitals, and other buildings, roads, bridges, power lines, etc. Disasters can be caused by naturally occurring events, such as earthquakes, flooding, hurricanes, tornadoes, or they can be due to man-made events, either accidental (such as an accidental toxic spill or nuclear power plant event), or deliberately caused (such as various terrorist bombings and poisonings). It may be impossible to avoid disasters, but it is not impossible to plan ahead of time so as to minimize the impact that any given disaster might have on us or our family's health, safety and property. There are steps we can take ahead of time, including purchasing

the proper types of insurance, preparing a disaster kit and supplies, making a disaster plan and rehearsing it with our family, and staying informed so that we can do our best to get out of the way of predictable dangerous occurrences, that can help us, our family and our property stay as safe as possible.[1] Disasters are contingent and unpredicted and can only be dealt by effective disaster management programs. Students can prove to be useful workforce in disaster situation. College students need to know basic plan of action to be carried in an emergency. It is not possible to prevent disasters, but it is possible to be prepared. Students can be made aware regarding the impacts of disasters through formal and informal education. The practices regarding disaster preparedness training and performance of drills are largely negative and sincere work needs to be done in this direction[2]

Need of the study:

Over the last decade, China, the United States, India, Indonesia and the Philippians constitute the top five countries that are most frequently hit by natural disasters. It appears that, in 2016, flood killed the most people (4,731), earthquakes killed (1,315), storms (1,797), death from wildfires (39), landslides (361) and extreme temperatures (490) respectively[3] India has been vulnerable to a large number of natural, as well as human- made disasters on account of its unique geo-climatic and socioeconomic conditions. India is a country vulnerable to floods, droughts, cyclones, earthquakes, landslides, avalanches and forest fires. [4]

Assam is a multi hazard state prone to floods, earthquake, storms and landslide besides man -made disasters. Assam is in the eastern most projection of the Indian plate, as per the plate tectonics, where the plate is thrusting underneath the Eurasian plate creating a subduction zone and the Himalayas, making the state of Assam fall under the seismic zone V making the entire state prone to earthquake of moderate to very high intensity. In the year 1897 and 1950, the state has experienced two major earthquakes. On the Richter scales, the intensities of these two earthquakes were 8.7 and 8.5 respectively[5]. Heavy rains caused overflowing of Brahmaputra River in the state in July, 2017 and claimed 157 lives. ASDMA (Assam State Disaster Management Authority) has provided shelter to 4, 51, 846 people, run 954 relief camp[6]. In 2019, according to Assam State Disaster Management Authority bulletin, a population of 1, 65, 763 in 268 villages in 25 revenue circles of 12 districts were affected by flood [7]. Massive soil erosion by the Brahmaputra has wiped out at least 228 schools and affected 1,130 schools since 2012 in Assam. In 2019, the maximum number of schools, 429 was affected[8]. Youth is the age when a person is energetic and mentally strong so can be involved in preparation of disasters as it can happen at any time and should be prepared to handle effectively. Keeping in mind the disasters that hamper the state, Assam, researcher has felt the need to conduct a study on effect of information booklet on knowledge about disaster preparedness among students of selected colleges of Kamrup district, Assam.

Problem statement:

A study to assess the effect of Information Booklet on knowledge regarding Disaster Preparedness among students in selected Government colleges of Kamrup metro, Assam.

Objectives:

• To assess the pre- test knowledge regarding disaster preparedness among students of selected government colleges of Kamrup metro, Assam.

• To assess the post- test knowledge regarding disaster preparedness among students of selected government colleges of Kamrup metro, Assam.

• To assess the effect of information booklet on knowledge about disaster preparedness among students of selected government colleges of Kamrup metro, Assam.

• To find out the association between pre-test knowledge about disaster preparedness with selected demographic variables.

II. Materials And Methods

A Pre-experimental one group pre-test post-test research design was used for the present study. Proportionate stratified random sampling was used to select 220 students for the study. The investigator randomly selects two Government Colleges namely B.Borooah College, Ulubari and Dispur College, Ganeshguri.

Study design: Pre-experimental one group pre-test post-test research design

Study location: two Government Colleges namely B.Borooah College, Ulubari and Dispur College, Ganeshguri.

Study duration: 3rd March, 2020 to 12th March, 2020

Sample size: 220 students

Sample size calculation: Sample size for the present study is 20% of the accessible population studying BA in 2nd, 4th and 6th semester in selected Government Colleges of Kamrup (M). Using Raosoft sample size calculator, with confidence level of 95%, the final sample size is 220 students.

Subjects and selection method: The subjects were drawn proportionately by selecting two Government Colleges using simple random sampling technique (lottery method). Number of students from 2 colleges studying BA in 2nd, 4th and 6th semester was collected. From that number 220 samples were selected by using proportionate random sampling technique. The desired number of students from each semester was selected by simple random sampling using lottery method.

Inclusion criteria:
* Students who were studying Bachelor of Arts in government colleges of Kamrup metro, Assam.
* Students who were willing to give consent and participate in the study.

Exclusion criteria:
* Students who were sick/absent during the time of data collection

Description of the tool:
Based on the problem statement and objectives of the study, a well structured knowledge questionnaire and Information booklet on disaster preparedness was developed for data collection and was consulted with experts that include physician, professors and lecturers from the field of Community Medicine, Community Health Nursing, Medical Surgical Nursing and Fire and Emergency Assam Disaster Management. The questionnaire was divided into two parts:

Part 1: Socio-demographic proforma which includes age, gender, standard, religion, occupation of father, occupation of mother, and source of information regarding disaster preparedness.

Part 2: Structured Knowledge Questionnaire on disaster preparedness consisted of 28 numbers of multiple choice questions (MCQs) with 4 options and 1 correct answer. The structured knowledge questionnaires include selected aspects of disaster preparedness Viz. - earthquake, flood, storm, fire accidents and disaster preparedness kit.

The knowledge scores were divided into three parts:
* Poor= < (Mean- Standard deviation)
* Average = (Mean – Standard deviation) to (Mean + Standard deviation)
* Good= > (Mean+ Standard deviation)

Information booklet was designed to guide and help the students to cope with disasters, especially with regard to what we should do before, during and after a catastrophic event. The Information Booklet was prepared by doing an extensive review of literature, books and consulting with experts. Information Booklet was developed with an aim to increase the knowledge about disaster preparedness among college students.

Procedure methodology:
After obtaining formal permission from the Chairman of Ethical Committee, Guwahati and principals of the selected colleges. A well structured knowledge questionnaire was used to collect the data. Number of students from the selected college studying Bachelor of Arts (2nd, 4th and 6th semester) are collected. From that number 220 samples were selected using proportionate random sampling technique. Data was collected from 220 students from semester 2nd, 4th and 6th studying Bachelor of Arts using simple random sampling (lottery method). Self introduction was given by the investigator and purpose of the study was explained to the participants. Written consent was obtained from each participant and confidentiality was assured. Data was collected within 3rd March, 2020 to 12th March, 2020. On 3rd March, 2020, assessment of pre-test knowledge of the students from Dispur College was collected and after seven days post-test knowledge was collected on 11th March, 2020. While, assessment of pre-test knowledge of the students from B.Borooah College was collected on 4th March, 2020 and post-test knowledge was collected after seven days on 12th March, 2020. Information Booklet was distributed to the students after completion of the pre-test questionnaire. After seven days again questionnaire were distributed (post test had taken) to the same students.

Statistical analysis:
Data were coded, organized in a master sheet and Statistical Package for the Social Sciences (SPSS) was used for data analysis. Descriptive and inferential statistics like frequency table, percentage, mean, standard deviation and chi-square was useful for analyzing the data. The level of significance was set at 0.05 to interpret the findings. Distribution of demographic variables among college students was analyzed using frequency percentage. Distribution of sample according to the pre-test and post-test knowledge on disaster preparedness among college students was analyzed by computing frequency, percentage distribution, mean and standard deviation. Paired t test was used to compare the pre-test and post-test level of knowledge of the students on disaster preparedness Association of pre-test knowledge of the students with their socio-demographic variables was analyzed by using chi-square test.

III.   Results

The demographic profile of the students revealed that out of 220 students, majority of the subjects 106(48.2%) belonged to the age group of less than (<) 20 years, were female 135 (61.4%), were in 2nd semester 82(37.3%) , 139 (63.2%) belonged to Hindu religion, 104 (47.3%) of father's occupation belonged to government employed, 165 (75.0%) of the mother's occupation belonged to housewife and 139 (63.2%) of the source of information belonged to internet (see Table 1). The study finding reveals that, majority of the subjects, 69 % had average knowledge, 15 % had poor knowledge and only 16 % had good knowledge in pre-test while 54.09 % of the subjects had good knowledge, 35.45 % had average knowledge and 10.45 % had poor knowledge in post-test (see Figure 1&2). The mean post-test knowledge scores of the subjects regarding disaster preparedness (19.15) is higher than the mean pre-test score (14.09). SD of the post-test 7.3 was also found to be higher than the SD of the pre-test i.e. 4.8. The pre-test mean score in different areas of the study were disaster preparedness and plan (2.29), emergency disaster kit (2.63), flood (1.46), earthquake (2.09), storm (2.56) and fire accident (3.06) whereas in post-test the mean score in different areas were higher than pre-test mean, disaster preparedness and plan (3.24), emergency disaster kit (3.96), flood (1.87), earthquake (2.87), storm (3.04) and fire accident (4.18). The actual gain score was found to be 5.06, possible gain score 585.91 and modified gain score was 0.048 (see Figure 3). Findings inferred that there is significant mean difference between the pre-test and post-test level of knowledge scores of the college students regarding disaster preparedness.

The overall improved mean difference of knowledge obtained 5.06 and the calculated 't' value 9.19 is higher than tabulated value at degree of freedom 219 for 0.05 level of significance (see Table 2).The findings infer that it is statistically significant and it reflects that the information booklet was found effective. Chi square was computed to find out the association between pre-test knowledge scores and selected variables. No significant association was found between knowledge and selected variables such as age, standard, occupation of father, occupation of mother and source of information. However, significant P value witnessed in case of gender and religion of the students.

Table 1: Demographic Profile of the students

| Sl. no	Demographic data	n	%
1.	Age		
	<20	106	48.2
	20-25	104	47.3
	>25	10	4.5
2.	Gender		
	Male	85	38.6
	Female	135	61.4
3.	Standard (class)		
	2nd semester	82	37.3
	4th semester	72	32.7
	6th semester	66	30.0
4.	Religion		
	Hindu	139	63.2
	Christian	48	21.8
	Muslim	26	11.8
	Others	7	3.2
5.	Occupation of father		
	Private job	32	14.5
	Government employed	104	47.3
	Self employed	54	24.5
	Others	30	13.6
6.	Occupation of mother		
	Housewife	165	75.0
	Private job	10	4.5
	Government employed	25	11.4
	Self employed	20	9.1
7.	Source of information		
	Newspaper	26	11.8
	Family and friends	12	5.5
	TV	36	16.3
	Radio	7	3.2
	Internet	139	63.2
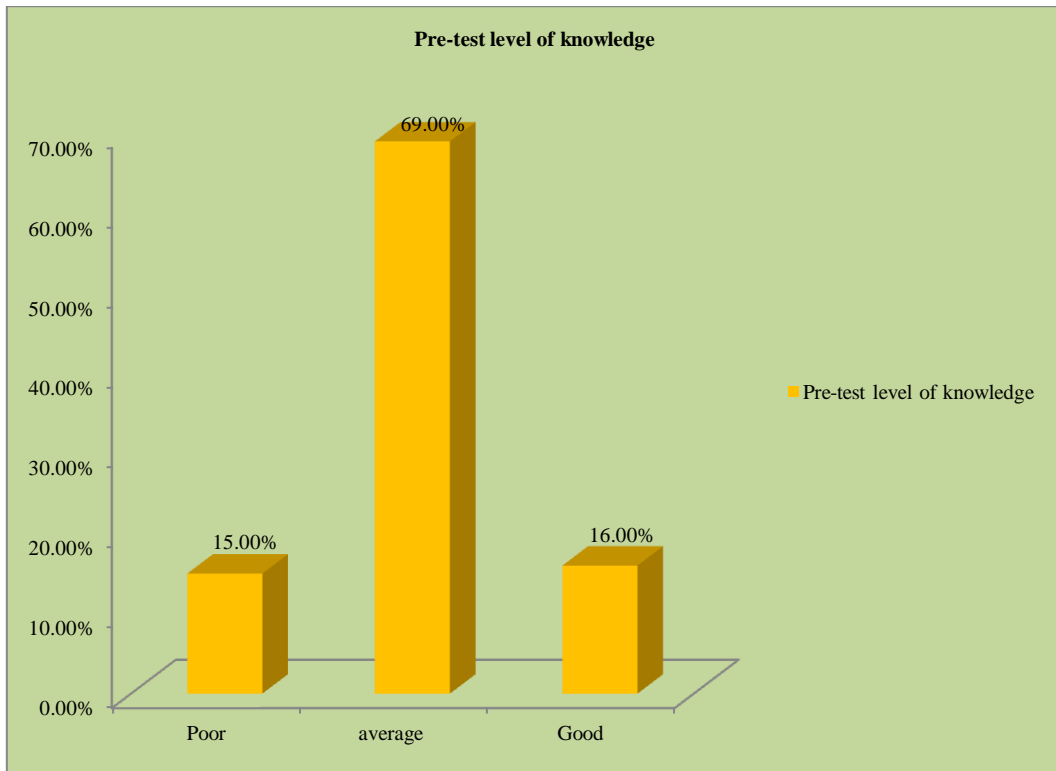
Figure 1: Bar diagram showing pre-test level of knowledge regarding disaster preparedness.
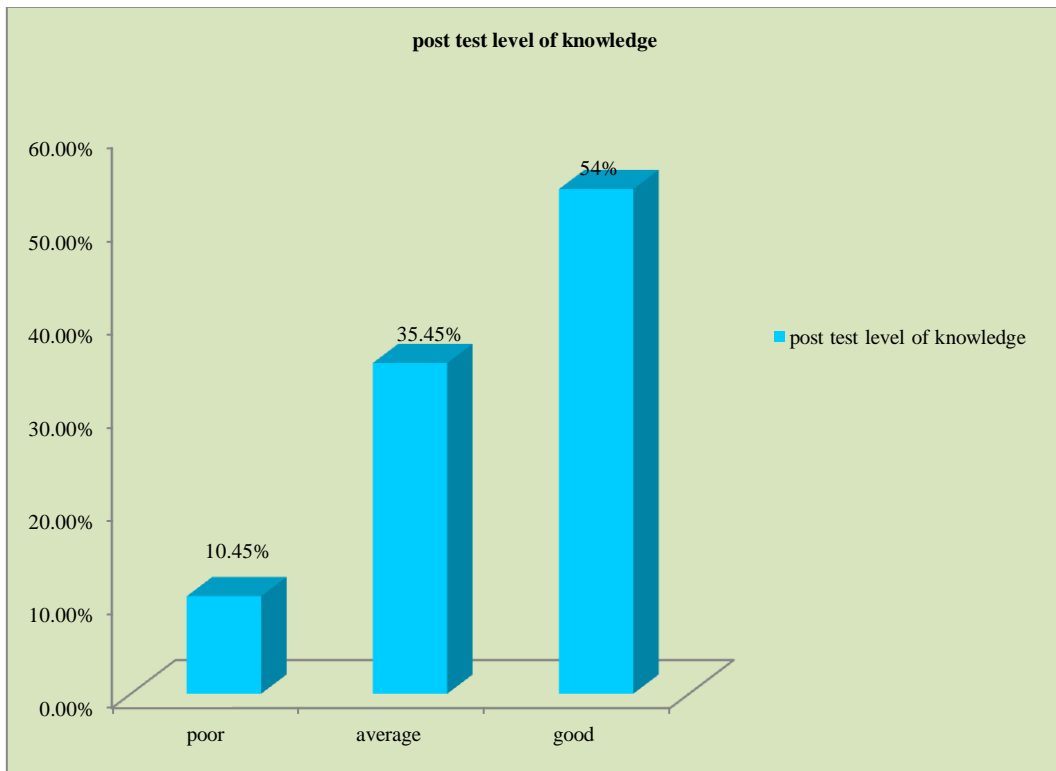

Figure 2: Bar diagram showing post- test level of knowledge regarding disaster preparedness.
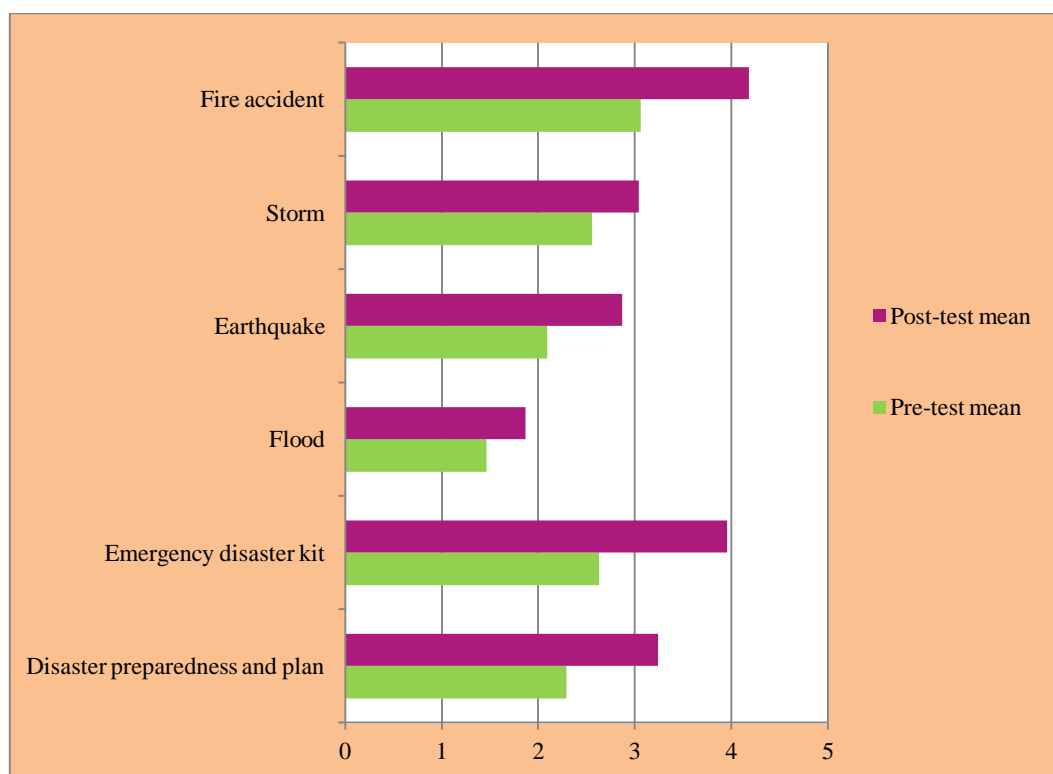
Figure 3: Bar diagram showing difference between pre-test mean and post-test mean score of different areas.

Table 2: Effect of information booklet on disaster preparedness among college students by comparison (paired t- test) between pre-test and post-test level of knowledge.

Information booklet	Mean	SD	Mean difference	t value	df	P value	Remarks
Pre-test	14.09	4.8	5.06	9.19	219	< .00001	*S
Post-test	19.15	7.3					

*S=Significant at p< 0.05

IV. Discussion

      The findings of the study were compared with those of the other studies. The findings of the current work showed that out of 220 subjects, 106(48.2%) belonged to the age group of less than (<) 20 years, 104(47.3%) belonged to 20-25 years and 10 (4.5%) belonged to the age group of more than (>) 25 years. Majority of the participants are female 135 (61.4%) and 85 (38.6%) are male. Similar findings were reported by Tanner A, Doberstein B (2015)[9] were results revealed that out of the 80 respondents 46.3% were male while the remaining 53.8% were female. The overall pre-test knowledge, out of 220 subjects, majority of the subjects 151 (69%) had average knowledge, followed by 35 (16%) had good knowledge and 34 (15%) had poor knowledge. Whereas, these findings were in accordance with Naser WN, Salem HB (2018)[10] who proved that, out of 531 respondents, 32.0% had good knowledge, 53.5% had fair and 14.5% exhibited poor knowledge. Another similar study was conducted by Alrazeeni D (2015)[11] regarding students preparedness for disaster management were respondents reported weakly to moderate knowledge, the means ranged from (M=2.50, SD1.57 to M3.40 SD 1.30).

      The results of the present study revealed that, out of 220 students, majority of the subjects 69 % had average knowledge, 15 % had poor knowledge and only 16 % had good knowledge in pre-test while 54.09 % of the subjects had good knowledge, 35.45 % had average knowledge and 10.45 % had poor knowledge in post-test. The mean post-test knowledge score 19.15 was higher than mean pre-test knowledge score i.e. 14.08. The SD of post-test was 7.36 which was higher than SD of pre-test 4.8. The result is similar to that revealed by Joshi MA and Ahirrao A. (2012)[12] who conducted an evaluative approach study on effectiveness of information Booklet on knowledge of people residing in selected areas of Pune city regarding disaster preparedness and claimed that majority 88.3% people in pre test were having moderately adequate knowledge, 8.3% were having inadequate knowledge and only 3.3% were having adequate knowledge. Whereas in post test 81.7% had adequate knowledge and 18.3% having moderately adequate knowledge, which indicates that the information booklet improved knowledge of people regarding disaster preparedness .Another similar study done by Sonal G(2014)[13] were result of the study reveals that the pre-test mean knowledge score was 10.38 less than the post-test

mean knowledge score 28.08 after administration of self-instructional module. The paired 't' test was statistically significant at 0.05 level.

Regarding the pre-test mean score in different areas, the current study findings showed that disaster preparedness and plan (2.29), emergency disaster kit (2.63), flood (1.46), earthquake (2.09), storm (2.56) and fire accident (3.06) whereas in post-test the mean score in different areas were higher than pre-test mean, disaster preparedness and plan (3.24), emergency disaster kit (3.96), flood (1.87), earthquake (2.87), storm (3.04) and fire accident (4.18). The actual gain score was found to be 5.06, possible gain score 585.91 and modified gain score was 0.048. A similar study conducted by Ezhilarasi N, Jothy K (2018)[14] were results shows that the respondents awareness of pre-test mean score regarding the types of flood, flash flood, coastal flood were 60, 48 and 46 whereas the post-test values were 92, 90 and 39 respectively. The mean pre-test score regarding the drought consequences, metrologic drought and goals of droughts were 58, 44, 20 and post-test score was 91, 88 and 76. Regarding the knowledge level of the respondents about landslides, causes, types, effects and mitigation measures, the pre-test mean score was 62, 49, 42,56 and 57 whereas post-test scores was 88, 87, 87, 90, 88 respectively.

The current study shows that, the findings infer that it is statistically significant and it reflects that the information booklet was found effective. It also reflects that the college students have gained some level of knowledge regarding disaster preparedness.

V. Conclusion

Disasters cause serious health threats to any nation. If students are well prepared intensity of loss can be minimized. Investigator found that students are not actually prepared for disaster though majority had average knowledge score. Students need to inform about the simple things which can save their lives in any emergency. Most of the subjects had average knowledge in pre-test regarding disaster preparedness and the information booklet was found to be effective in increasing knowledge because the post-test score for knowledge had increased drastically.

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