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A Study to Assess the Awareness on Disaster Management among School Going Children in Kanyakumari District, Tamil Nadu, India

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Abstract

The classical characterization of disaster is unfamiliarity, unpredictability, uncertainty, vulnerability, urgency, intensity and danger. Major disasters include earthquake, landslides, volcanic eruptions, floods hurricanes, fires, tornados, blizzards, tsunamis, cyclones. Apart from causing deaths and severe ill health, disasters also lead to large scale displacement, injuries, epidemics, and substantial economic losses to the communities. Though every emergency or disaster has its own characteristics and demands but the basic measures under disaster management include prevention, mitigation, preparedness, response and recovery for which regular training and awareness activities are needed especially among students. The objective of the study was to assess the extent of awareness about disasters and their management among school going children. It was an educational interventional design with an exploratory research approach adopting nonprobability purposive sampling technique in Kanyakumari district. The study also adopted geo-spatial technique to identify the flood vulnerable school in the district. Survey method was employed, on 400 participants aged between 12 and16 years using a pre-tested semi structured questionnaire data sheet.

The outcome revealed that out of 400 students 43.9% (before intervention) and 93.3% (after intervention) had knowledge of disaster management. These findings emphasize that the extent of knowledge is not yet satisfactory and there is a severe need of providing knowledge to the school children. Disaster management can be compulsorily included in academic curriculum of all the students. Effective, purposeful training and awareness programs are to be timely conducted

Keywords: Disaster emergency management • Intervention • GIS techniques • Natural disaster • Floods

Introduction

Emergencies and disaster not only affect health and wellbeing of people, but frequently large number of people are also displaced, killed, or injured or subjected to greater risk of epidemics. Considerable economic harm is also common. Disaster cause great harm to the existing infrastructure and threaten the future of sustainable development. Disasters are not confined to a particular part of the world; they can occur anywhere and at any time. Major emergencies and disaster have occurred throughout the history, as the world's population grows and resources become more limited, community are increasingly becoming vulnerable to the hazards that cause disaster [1]. The relative number of injuries and death differ, depending on the number of factors such as the type of disaster, the density and distribution of the population, condition of the environment, degree of the preparedness and opportunity of the warning. A disaster is a natural or manmade event that negatively affects life, property, livelihood, or industry often resulting in permanent changes to human societies, ecosystems and environment. Disasters arise without direct human involvements are known as natural disasters. It can be more severe than manmade. The disasters having an element of human intent or negligence are called manmade disasters.

Disaster have five phases such as warning period, impact, threat period, inventory period and rescue period. During disaster the actions taken by an organization in response to unexpected events that are adversely affecting people or resources and threatening the continued operation of the organization that is known as disaster management. It includes the development of disaster recovery plans, for minimizing the risk of disaster and for handling them when they occur, and the implementation of such plans. It is carried out by the disaster management team. In this regard, the present study deals about an integrative approach of disaster risk reduction among schools in Kanniyakumari district, Tamil Nadu, India. The research

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group considered Kanniyakumari district for an intensive research study due to devastating damage occurred during Ochki cyclone November 2017. It was evident that most of the schools were completely damaged in terms of buildings and followed by a serious disruption in education.

In our earlier study identified the flood vulnerable zone (FVZ) in Kanniyakumari district using GIS techniques. The current research work focused to identify the schools vulnerable to flood hazard in Kanniyakumari district. The authors located the flood vulnerable schools to assess the level of awareness on disaster among school children [2]. Broad objective of the study is to assess the extent of awareness about disasters and their management among school going children before and after an educational intervention focusing on disasters and its managing strategies. Imparting knowledge about disasters to families, communities and especially students is one of the most effective ways to develop a society which is prepared to address the challenges posed by disasters strongly.

Materials and Methods

It was an educational interventional design with an exploratory research approach adopting non- probability purposive sampling technique. The study adopted a geo-spatial technique to identify the flood vulnerable schools of Kanniyakumari district. The study was regulated in two different ways namely Pre-training test and Post-training test. The Pre-training test was carried out to assess the knowledge of the students before training and the Post-training test was carried out to assess the knowledge of the students after training. The third step towards the study was to assess the knowledge of the disaster concepts among the schoolteachers too. A standard questionnaire was used to assess the knowledge and capability of the school teachers to handle the disaster situation. This also spotlights the individual perception on amalgamating the disaster concepts into the curriculum. Questions of all the three sections were mixed and not arranged in any order to avoid bias. To begin with, permission was sought from school authority and students were well explained about the purpose of the study. Totally 400 students of age group12-16 years were included as study participants. Validity of the tool in questionnaire was drafted by the experts of the concerned field. After certain modifications the final draft of questionnaire was prepared, and willingness was taken prior to the study and informed consent was sought. As a final step, the scoring was documented before and after giving training to the students and the statistical analysis was done in SPSS 20.0 version. Separate cross tabulation has been done based on gender and age to get an immense idea on the head counts under a particular range of scores. Later following tests such as paired t-test (to check whether there is a significant difference in the post training scores) and Chi-square test (to check whether there is a difference in gender or not) have been executed to grab the results.

Study Area

The study area is curbed to the southernmost district of Tamil Nadu, i.e., Kanniyakumari, comprising a total geographical area of 1684 km2. According to Tamil Nadu Education Department (2018), the district has totally 1,216 Schools attributing nearly cent percent literacy rate. Moreover, the Indian Ocean and the Arabian Sea surrounds the district on South and South-west direction and Kerala state on West and North-west. Being situated at the southern tip of peninsular India, the region receives rainfall from both South-west and North-east monsoon during summer and winter seasons (Table 1).

S.no	Category of School (s)	No. of schools	No. of students
1	Government	502	57271
2	Government Aided	290	94144
3	Tribal Welfare	12	1511
4	Central Board Secondary School	1	1074
5	Other Private Schools	411	158141
Total		1216	312141

Table 1. Total schools in the district.

Result and Discussion

The intensive study conducted to demarcate the flood vulnerable zone in Kanniyakumari District. The area covered under the category of very high and highly vulnerable was 916.3 km^2 portrayed the majority area in the district. The current study focused on schools other private and delineated the flood prone schools in the district using geospatial technique. The result reveals that there are 34 Very Highly Vulnerable schools, 691. Highly vulnerable schools, 79 moderate vulnerable schools and 01 Low vulnerable school is observed with respect to the flood hazard.

N	400
Mean	43.91
Minimum Value	24
Maximum Value	91

Table 2. Mean value in pre-training test.

During the initial stage of evaluation the pre-test was done to the students the mean value of the students scored in pre-training test [3]. The average mean value scored by the students in the pre-test was 43.91 and the minimum value scored by the students in the pre-test was 24 and the maximum value scored by the students was 91. After providing awareness about the disaster preparedness the post-test was conducted to the students to check the efficiency of the training program.

Since it was a comparative study the mean score of the test after the training given to the students from the results derived the mean value of the post training test was 93.03 in which the minimum mark obtained by the students in the post training test was around 14 by only one student and the other remaining samples hits the target score of above the average which is greater than 70. The comparison of the percentage marks obtained by the students and the frequency of occurrence.

The cumulative percentage of the marks obtained by the students was represented in the red line of the graph and the frequency of occurrence of marks was represented in the blue line. To gain a better understanding of the interpretation, a paired t test was performed in order to get a clear view of understanding between the difference in the performance percentage of both the pre and post training test. From the results derived based on the paired t test there was a significant difference observed in both the pre and post training stages in which (P<0.05).

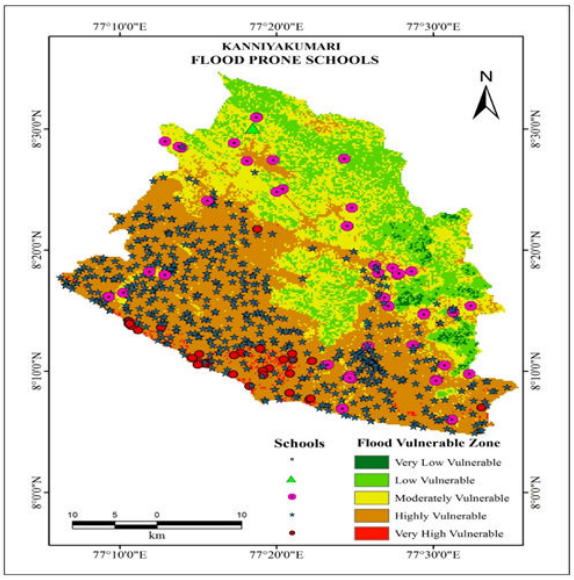

Figure 1. Flood prone schools.

As per the results derived from the paired test, the before and after scores of the individual that is (xi, yi) has been given. The mean and standard deviation of the 400 respondents, in which the huge variation in the value of mean was noticed. Further interpretation results also give the value for difference of mean value as 49.12 promptly with the standard deviation of 8.204 and standard error mean of 0.410.The lower and upper boundary value of the 95%confidence interval was between (49.927, 48.315).

Since (P<0.05) there is a statistical significant difference between the Pre and Post training test at 95% confidence interval. Hence the Null Hypothesis stated that there is no significant difference between the Pre and Post training test. So, in this case we are rejecting the null hypotheses and accepting the alternate hypotheses [4]. It is also very clear that the training is given in a very effective way for the students regarding the disaster preparedness and Disaster Risk Reduction in which it explores the drastic differences between the pre and post training program. ANOVA was performed at 95% confidence interval in order to explore the idea on the improved percentage with respect to gender. The results reveal that there was no significant difference in the percentage change induced by gender. The validity of the proposed indifference between the score and gender.

The p value was greater than 0.05 we are accepting the null hypothesis and there by rejecting the alternate hypothesis. Since the (P>0.05) it is evident that there is no significant difference between the pre training test percentages with respect to gender [5]. The obtained significant value was 0.902 at 95% confidence interval which is greater than the p value of 0.05 and hence here we are accepting the null hypothesis and there by rejecting the alternate hypothesis. Here we can conclude by saying that there is no significant difference between the post-test percentages with respect to gender.

Conclusion

School makes a safer environment for the students. This study focuses on creating a guideline for safer management in schools. School is a place where a younger generation can magnify their knowledge in an immense way. As per the Sendai Framework for Disaster Risk Reduction adopted at Third UN World Conference on Disaster Risk Reduction (14-18 March 2015, Sendai, Japan), there is the need for sustained global public education and also there is a need for conducting awareness campaigns in post-disaster recovery and reconstruction, increased investments in the resilience of the education system. In regard with providing awareness to the national officials based on the officials' knowledge on disaster risk reduction by means of sharing the experience, good practices, training and education, advocate for resilient communities. Involvement of children and youth communities through awareness campaigns also boosts them with knowledge of disaster preparedness. In the light of this agenda, the study was done with the eagerness to influence the supremacy of disaster concepts in educational schedule, with a momentous role of the young community in all juncture of disaster, and eventually for the safer environment of school.

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