A study to assess awareness on disaster management among school going children in Gwalior (M.P.)

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Background: 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 it’s 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.

Methods: It was an educational interventional design with an exploratory research approach adopting non-probability purposive sampling technique. Kendriya vidhyalaya no: 4 affiliated to CBSE was randomly selected, which is situated in mid of the Gwalior town. Survey method was employed, on 110 participants aged between 12 and 16 years using a pre-tested semi structured questionnaire data sheet.

Results: The outcome revealed that out of 110 students 87.2% (before intervention) and 98.2% (after intervention) had knowledge of disaster management.

Conclusions: 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 programmes are to be timely conducted.

Keywords: Disaster, Management, Intervention, Research

INTRODUCTION

"Disaster, by Oxford dictionary's simple definition is an unexpected event, that kills a lot of people or causes huge damage".¹ The Centre for Research on the Epidemiology of Disaster (CRED) in Brussels, Belgium has come up with a modified definition i.e., “A disaster is a situation or event which overwhelms local capacity, necessitating a request to a national or international level of external assistance”.² As per CRED an event can be classified as a disaster if, it kills more than 10 people/impacts or displaces more than 100 people/it is declared a national emergency/the country had to receive international assistance. The classical characterization of disaster are unfamiliarity, unpredictability, uncertainty, vulnerability, urgency, intensity and danger. Broad objective of the study was to assess the extent of awareness about disasters and their management among school going children.
children before and after an educational intervention focusing on disasters and their management.

Major disasters include earthquake, landslides, volcanic eruptions, floods, hurricanes, fires, tornados, blizzards, tsunamis, cyclones. Man made disasters have been in the form of fires, stampedes, traffic accidents, industrial mishaps (Bhopal gas tragedy), oil spills, terrorist attack, wars with chemical, biological, radiological, nuclear or explosives (CBRNE). Annually disasters take a toll of average 74000 lives and affects around 230 million people world over. In the last two decades, the casualties and destruction attributable to disasters has increased severely. The decade 1990-99 had been declared the international decade for natural disaster reduction by UN.

Apart from causing deaths and severe ill health, disasters also lead to large scale displacement, injuries, epidemics and substantial economic losses to the communities. Therefore there is always a need to develop a multifaceted approach involving all stakeholders from different disciplines and sectors of the society for which the foremost measure is to have a well informed and aware citizens and school is the best place of learning of such kind.

Once a disaster hits an immediate response involving various agencies and communities is pivotal, which can control emergencies, and minimize/avoid the aftermaths and help people recover from the effects of disaster (UNISDR), technically termed as disaster management.

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. Even Government of India had given special focus on increasing knowledge and skill among students in its 12th 5 year plan. Schools become more important for this activity because to ensure the security and safety of school children is the fundamental responsibility of any society, especially in context of India, where more than 30% of its population is below 15 years and most of their time is spent in schools.

Additionally, schools by themselves have also been, direct victim of many disasters in the past like in Spitak earthquake (Armenia) 1988, Bhuj earthquake 2001, Kashmir earthquake (northern Pakistan) 2005 and Sichuan Earthquake in China 2008 where hundreds of children lost their lives during their school hours. In Indonesia a massive landslide buried many students and teachers of an elementary school in 2006. A huge number of children died in Tamil Nadu in 2004 when a fire broke out after the explosion of a cooking gas cylinder.

Moreover, schools are mostly transformed to temporary shelters for the affected individuals after disasters. At times, teachers with students are needed to take up the duty as rescuer and provide essential first aid care and counseling. All these factors emphasize the need of skill based training regarding proper disaster response in schools for students who can serve the communities as well, in later part of their lives through their knowledge. Awareness needs to be spread about various types of disasters, their effects, characteristics and their peculiarities. The role National Organizations, United Nations and other agencies in disaster management is also needed to be taught in addition to the basics of disaster management measures, giving special attention to communication, planning, co-ordination and risk reduction.

Broad objective of the study was 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 their management.

**Rationale**

The adjoining parts of the study have been affected by various disasters in the past like earthquakes, floods (due to heavy rain or breaking of large dams), fires, severe air pollution (smog), heat stroke, epidemics, building collapse, toxicogenic accidents (e.g. Bhopal gas tragedy making this study pertinent to be undertaken. 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.

**METHODS**

It was an educational interventional design with an exploratory research approach adopting non-probability purposive sampling technique. Kendriya Vidhyalaya no: 4 affiliated to CBSE was randomly selected, which is situated in mid of the Gwalior town. Survey method was employed, on 110 participants aged between 12 and 16 years using a pre-tested semi structured questionnaire data sheet which included questions in three sections:

1. Knowledge about the characteristics, mechanisms and effects of various disasters.
2. Knowledge about the possible control measures and precautionary measures for various disasters.
3. Different agencies working for disaster management.

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. Their willingness was taken prior to the study and informed consent was sought. 110 students of age group 12-16 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. The reliability coefficient came out to be 0.84 (84%). Pilot study on
20% of participants was done and accordingly changes were made in questionnaire. After the proformas were filled by all participants, a power point presentation with description of disasters and their management was displayed and properly explained with didactic communication. The same questionnaires were distributed again after the educational intervention, so the data was collected as pre and post interventional data both during the period of September 2017. The data collected was analyzed with the help of EPI info software then compiled in tabular form, appropriately.

**Inclusion criteria**

Inclusion criteria were school going children of the age group 12 to 16 years who were willing to participate.

**Exclusion criteria**

Exclusion criteria were children above 16 years and below 12 years and those who were unwilling to participate.

**RESULTS**

Out of the total 110 participants 48 comprised of males and 62 were females in the age group of 12 to 16 years. The present study found that out of 110 students 87.2% (before intervention) and 98.2% (after intervention) had knowledge of disaster management. In another finding 47% participants before and 69% after, the intervention were able to identify the disasters by their characteristic features. The other important findings have been presented in the form of Table 1 below.

**Table 1: Knowledge, attitude of participants before and after intervention about disaster management (n=110).**

| Variable                                                   | Before intervention | After intervention |
|------------------------------------------------------------|---------------------|--------------------|
| Knowledge about disaster management                        | Yes                 | 96                 |
|                                                            | No                  | 14                 |
| Identification of different disasters (earthquake, hurricane, tornado, bridge collapse) | Yes                 | 52                 |
|                                                            | No                  | 8                  |
| Attended any lecture on disaster management previously     | Yes                 | 62                 |
|                                                            | No                  | 42                 |
| Knowledge about steps of disaster management cycle          | Yes                 | 46                 |
|                                                            | No                  | 16                 |
| Knowledge about year of disaster management act as 2005     | Yes                 | 62                 |
|                                                            | No                  | 42                 |
| Knowledge about content of emergency supply kit (flash light, batteries, water, fruits and vegetables) | Yes                 | 24                 |
|                                                            | No                  | 22                 |
| Correct knowledge about mechanism of earthquake             | Yes                 | 82                 |
|                                                            | No                  | 18                 |
| Correct knowledge about preparedness for earthquake         | Yes                 | 96                 |
|                                                            | No                  | 14                 |
| Correct knowledge about indoor and outdoor safety precautions during earthquake | Yes                 | 72                 |
|                                                            | No                  | 38                 |
| Correct knowledge about fire and after-shocks following earthquake | Yes                 | 30                 |
|                                                            | No                  | 80                 |
| Knowledge about preparedness for floods                     | Yes                 | 96                 |
|                                                            | No                  | 14                 |
| Knowledge about dam break or heavy rainfall as cause of floods | Yes                 | 46                 |
|                                                            | No                  | 64                 |
| Knowledge about movement to higher ground as main safety precaution during floods | Yes                 | 50                 |
|                                                            | No                  | 60                 |
| Awareness about hilly/mountainous terrain as most common topographical area associated with landslide | Yes                 | 80                 |
|                                                            | No                  | 30                 |
| Awareness about heavy rainfall or land misuse as most common cause of landslides | Yes                 | 38                 |
|                                                            | No                  | 72                 |
| Knowledge about fire as a disaster                          | Yes                 | 76                 |
|                                                            | No                  | 34                 |

Continued.
DISCUSSION

The outcome revealed that out of 110 students 87.2% (before intervention) and 98.2% (after intervention) had knowledge of disaster management. In a similar study by Rajesh et al in American Journal of Disaster Management the level of awareness was found to be 85.78%. 7

In another finding of present study 47% participants before and 69% after, the intervention were able to identify the disasters by their characteristic features whereas a study by Tuladhar had the finding of 94% in similar question. 8 So present study emphasizes that the level of awareness among school going children was not satisfactory initially but substantially improved after educational intervention.

In our study steps of disaster cycle were known to 42% before and 80% after the intervention. This when compared with study by Mathew 53% respondents were aware of the disaster cycle steps.

It focuses on the need of imparting knowledge of disaster cycle in school curriculum In present study all the contents of emergency supply kit were known to 18 participants before and 57 after the intervention. In a similar previous study by Thomas et al 67% respondents knew about contents of supply kit. This emphasize upon the need of generating knowledge about emergency supply kit to students.

In present study 28% awareness about mechanism of earthquake increased to 90% after intervention. Whereas in study by Tuladhar et al 94% students knew about mechanism of earthquake. 8 Safety measures to be followed during earthquake were known to 65.6% before and 85.5% after our present study.

In present study knowledge about causation of floods increased from 41.8% to 80% after the presentation. Whereas according to a previous study by Joshi et al 74% respondents knew about causes of flood. 9 In other finding of our study knowledge about safety precautions during flood increased from 45.4% to 83.5% after intervention.

In present study 34.5% were familiar before and 67.3% after the intervention, about the correct causes of landslide. Whereas in previous study by Tuladhar 37% students were familiar with causes of landslide. 8

Regarding Fire, in present study 36.6% were aware about firefighting measures before and 82.8% after the intervention. However Gautam et al in a previous research found that 65.5% participants were trained in fire safety with 31.93% participants being able to operate fire extinguisher as well.

In our study Fire Brigade’s number was correctly known to 58.2% (before) and 80% students (after) intervention. A related previous study by Gautam in Delhi found 93.44% participants being unaware of Disaster helpline number and only 49.18% units had displayed emergency numbers at the workplace.

In present study emergency number for disaster was known to 21.8% before and 87.3% after intervention and only 52% participants were aware of National Disaster Response Force and merely 10% knew about its chairman correctly. These findings bring out the interpretation that a lot needs to be done to enrich the students’ knowledge regarding various aspects of disaster causation and their management at all levels.

CONCLUSION

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. They are the strong elements who can disseminate the information to the wider sections of society. They are the social force who can help present and reduce risk of disasters. Disaster management can be compulsorily included in academic curriculum of all the students. Effective, purposeful training and awareness programems are to be
timely conducted. Making the future generation aware in the host promising way to sustain mankind in their era of increased branches, to destruction.

ACKNOWLEDGEMENTS

We sincerely express our gratitude towards the principal, staff and students of Kendriya Vidhyalaya no:4, Gwalior. We are also thankful to the Head, Department of Community medicine Gwalior for all required support.

Funding: No funding sources
Conflict of interest: None declared
Ethical approval: The study was approved by the Institutional Ethics Committee

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Cite this article as: Marskole P, Mishra A, Kumar P, Gaur P, Aharwar P, Patidar P. A study to assess awareness on disaster management among school going children in Gwalior (M.P.). Int J Community Med Public Health 2018;5:1371-5.