

## Original Research Article

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

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## ABSTRACT

**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 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.

**Methods:** It was an educational interventional design with an exploratory research approach adopting non-probability purposive sampling technique. Kendriya vidyalaya 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".<sup>1</sup> 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".<sup>2</sup> 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 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.<sup>3</sup> 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.<sup>4</sup>

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. Even Government of India had given special focus on increasing knowledge and skill among students in its 12<sup>th</sup> 5 year plan.<sup>5</sup> 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.<sup>6</sup>

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 Vidyalaya 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	
	N	%	N	%
<b>Knowledge about disaster management</b>				
Yes	96	87	108	98
No	14	13	2	2
<b>Identification of different disasters (earthquake, hurricane, tornado, bridge collapse)</b>				
All	52	47	76	69
Some	58	53	34	31
None	0	0	0	0
<b>Attended any lecture on disaster management previously</b>				
Yes	68	62	94	86
No	42	38	16	14
<b>Knowledge about steps of disaster management cycle (Preparedness, mitigation and rehabilitation)</b>				
All	46	42	88	80
Some	64	58	22	20
None	0	0	0	0
<b>Knowledge about year of disaster management act as 2005</b>				
Yes	42	38	94	86
No	68	62	16	14
<b>Knowledge about content of emergency supply kit (flash light, batteries, water, fruits and vegetables)</b>				
All	18	16	57	52
Some	24	22	27	24
None	68	62	26	24
<b>Correct knowledge about mechanism of earthquake</b>				
Yes	28	26	90	82
No	82	74	20	18
<b>Correct knowledge about preparedness for earthquake</b>				
Yes	54	49	80	73
No	56	51	30	27
<b>Correct knowledge about indoor and outdoor safety precautions during earthquake</b>				
Yes	72	66	94	86
No	38	34	16	14
<b>Correct knowledge about fire and after-shocks following earthquake</b>				
Yes	30	28	24	22
No	80	72	86	78
<b>Knowledge about preparedness for floods</b>				
Yes	96	87	100	91
No	14	13	10	9
<b>Knowledge about dam break or heavy rainfall as cause of floods</b>				
Yes	46	42	88	80
No	64	58	22	20
<b>Knowledge about movement to higher ground as main safety precaution during floods</b>				
Yes	50	45	92	84
No	60	55	18	16
<b>Awareness about hilly/mountainous terrain as most common topographical area associated with land slide</b>				
Yes	80	73	104	95
No	30	27	6	5
<b>Awareness about heavy rainfall or land misuse as most common cause of landslides</b>				
Yes	38	35	74	67
No	72	65	36	33
<b>Knowledge about fire as a disaster</b>				
Yes	76	69	96	87
No	34	31	14	13

Continued.

Variable	Before intervention		After intervention	
	N	%	N	%
Awareness about use of stairs as safety precautions during fire	Yes	40	36	90
	No	70	64	20
Knowledge about unsafe practices during fire	Yes	76	69	82
	No	34	31	28
Correct knowledge about emergency number for fire in India as 101	Yes	64	58	88
	No	46	42	22
Correct knowledge about emergency number for disaster in India as 108	Yes	24	22	96
	No	86	78	16
Awareness about chairman of national disaster management authority as Prime Minister of India	Yes	10	9	82
	No	100	91	28
Correct knowledge about NDRF as National disaster Response Force	Yes	52	47	96
	No	58	53	14

## 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%.<sup>7</sup>

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.<sup>8</sup> 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.<sup>8</sup> 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.<sup>9</sup> 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.<sup>8</sup>

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 prevent and reduce risk of disasters. Disaster management can be compulsorily included in academic curriculum of all the students. Effective, purposeful training and awareness programs 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.

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## REFERENCES

1. Definition available at: <https://www.oxfordlearnersdictionaries.com>. Accessed on 4 January 2018.
2. Report of Centre for Research on the Epidemiology of Disaster CRED. Available at [www.cred.be/](http://www.cred.be/). Accessed on 4 January 2018.
3. Park K. Park's Textbook of Preventive and social medicine 21st edition, M/S Banarasidas Bhanot publishers, Jabalpur; 2011: 736-740.
4. Report of United Nations office for disaster risk reduction UNISDR. Available at <https://www.unisdr.org>.
5. Report Available at: <http://earthquake.usgs.gov/hazards>. Accessed on 4 January 2018.
6. Ray S. Disaster Management, 1st edition, New Delhi: CBS Publishers and distributors pvt ltd: 2012.
7. Rajesh G, Chhabra KG, Shetty PJ, Prasad KV, Javali SB. A survey on disaster management among postgraduate students in a private dental institution in India. *Am J Disaster Med.* 2011;6(5):309-18.
8. Tuladhar G, Yatabe R, Dahal RK, Bhandary NP. Knowledge of disaster risk reduction among school students in Nepal, Geomatics, Natural Hazards and Risk. 2014;5:190-207.
9. Joshi S. Knowledge and practices of school teacher regarding disaster management. *Int J Health System Disaster Management.* 2014;2:98-102.

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