

# Effectiveness of Training Manual on Disaster Management in Terms of Knowledge and Self-Expressed Practices among Secondary School Teachers in Selected Schools of Pune City

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**Abstract:** *The disasters have increased substantially during last two decades. There is urgent need to adopt multidimensional and multi sectorial approach to reduce loss of lives and properties. **Aims:** A quasi experimental study was conducted to assess the effectiveness of training manual on Disaster Management in terms of knowledge and self-expressed practices among secondary school teachers in selected schools of Pune city. **Material and Methods:** Interventional approach was used in this study. One group pretest post test research design was used for the study. A pretest was administered by means of structured questionnaire and then training manual was administered. A post test was conducted using the same structured questionnaire. Simple random sampling technique was used and 540 secondary school teachers from 30 secondary schools were selected for the study. Semi Structured questionnaire was developed to assess the effectiveness of the training manual on disaster management. **Results:** The result revealed that the overall pretest mean knowledge score regarding disaster management observed to be 15.9 i.e. 53% and posttest mean score found to be 24.07 (80%) this findings also tested by paired 't' test the calculated value was greater than table value at 0.05 and 0.01 level of significance which was highly significant. Pretest self-expressed practice score observed was 7.05 i.e. 47%. And post test score was 11.93 (69%). **Conclusions:** Every school and community must take it seriously and strive continually to achieve highest safety in schools. Every school is unique by virtue of its teachers, students, location and culture. Teacher's role is very important in mitigating the hazards and disasters in schools. The teacher who is aware of disasters and its management can improve the practices successfully. The study concluded that training manual was very effective in capability building among school teachers in Pune city*

**Keywords:** Effectiveness, Training manual; Disaster Management; knowledge; self-expressed practices; school teachers

## 1. Introduction

Open a newspaper and no matter what part of the world you happen to be in, you are bound to read reports of all sorts of natural and manmade disaster. A disaster is a tragedy, either natural or man-made calamity. The loss of life and property due to disasters has increased substantially during last two decades. Earthquake, Terrorist attack, fire and road accidents have created concern across the country for preparedness. More than 95 % of all deaths caused by disasters occur in developing countries and losses due to natural disasters are 20 times greater in developing countries<sup>[1]</sup>. There is urgent need to adopt multidimensional, multi disciplinary and multi sectoral approach to reduce the losses<sup>[1,7]</sup>. Government of India in its twelfth five year plan document, have emphasized the need to enhance knowledge, skill and values to reduce the impact of disasters on the education sector. Disaster Management training is useful for teachers, social workers and volunteers providing support and rehabilitation measures during disasters. Many lives can be saved if proper and timely help is given to the casualties<sup>[6]</sup>. The school is densely populated place and has small children that are one of the most vulnerable groups in the society. Justification of the study was based on the facts that safety of the school children is basic right of children. Teachers must be aware of disaster management in schools and gain knowledge and implement safety practices in school environment. Hence researcher assessed the knowledge and practices of teachers regarding disaster management<sup>[6][7]</sup>.

## 2. Review of Literature

Pala I. and Vankar GK 1997 conducted study titled „Assessment of knowledge and attitude of primary teachers about disasters“ suggests that only one fifth teachers out of 113 were confident about dealing with an accident. It was revealed that there was a knowledge deficit, especially regarding the prevalence of accidents. Misconceptions regarding first aid were also common<sup>[2]</sup>.

Ghosh A and Bharat R (Burns 2004) reports that „Community Awareness Programme for the target group of ladies and teenage girls and „School Education Programmes for the target group of school children of standard 8 in the steel producing city, Jamshedpur. He revealed that not only the formal Disaster Management training helps to improve the knowledge of the people, but the efforts like giving information booklet on child and infant safety and first aid treatment are also effective<sup>[3]</sup>.

Suja Suresh (2009) conducted study to determine the effectiveness of structured teaching programme on knowledge and practices of disaster management among school teachers. She found that there was gross inadequacy of knowledge on disaster management among school teachers. They had unsatisfactory practice towards cardiopulmonary resuscitation. The structured teaching programme was found to be effective. There was highly significant difference in knowledge and practice of school teachers before and after administration of structured teaching programme. There was positive correlation

between the knowledge and practices of school teachers [4].

Etsuko Tsunozaki, Asian Disaster Risk Reduction Centre (ADRC) conducted a survey on tsunami awareness (2005) in Srilanka, Maldives and Indonesia targeting a residents, school children, teachers and Govt officials. The result of survey showed that in Srilanka 93.5% of residents did not know about tsunami 77% residents answered that most effective way to prevent future tragedy was integration of disaster study into school curriculum. (Capacity building and awareness raising for disaster reduction through formal education)<sup>[5]</sup>.

### 3. Problem Statement

“A Study to Evaluate the Effectiveness of Training Manual on Disaster Management with Reference to Knowledge and Self Expressed Practices among Secondary School Teachers in Pune City”

#### Objectives of the study

- To assess the knowledge of the secondary school teachers regarding disaster management before administration of training manual
- To assess self-expressed practices of secondary school teachers regarding disaster management before administration of training manual
- To find out effectiveness of training manual on disaster management among the secondary school teachers in terms of knowledge and practices

#### Hypotheses

- There will be no significant difference between pretest and posttest knowledge score of secondary school teachers regarding disaster management.
- There will be no significant difference between pretest and posttest self-expressed practices score of secondary school teachers regarding disaster management.

#### Ethical Aspects

The proposal of this study had been scrutinized and sanctioned by the ethical committee for its conduction. The necessary permission was taken from the school authorities of the area for conducting the pilot study and the main study. Written consent was taken from every participant before collection of data.

### 4. Research Methodology

**Interventional approach** is used in this study. **One group pretest post test research design** was used for the study<sup>[9]</sup>. A pretest was administered by means of structural questionnaire and then training manual was administered. A post test was conducted after seven days using the same structured questionnaire. This study was conducted in selected secondary schools of Pune city, Maharashtra. **Population** was all the secondary school teachers of Pune city. The independent variable in this study was training manual on disaster management and dependent variable in this study was knowledge and self expressed practices of secondary school teachers regarding disaster management.

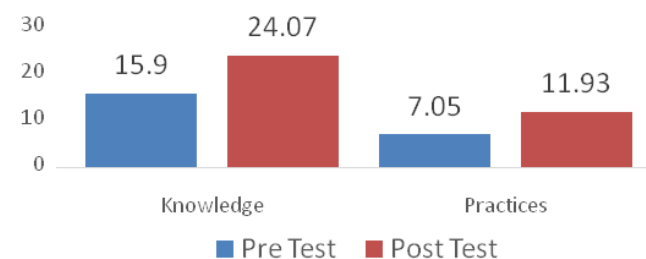
Sample In this study was secondary school teachers who were fulfilling the inclusion criteria. **Sample size was 540** secondary school teachers from selected secondary schools of Pune city. The sampling technique used in the study was **simple random sampling**<sup>[9]</sup>. Tool Preparation :- section I consists of socio-demographic variables of the subject e.g.Age, Sex, education, teaching experience etc.section II consists of 30 questions on knowledge regarding disaster management. Section III consists of 15 items on checklist of self expressed practices regarding disaster mangelmnt.Scoring – score 1 was given for correct answer and score 0 was given for wrong answer. **Validity and Reliability** – Tool was validated by 12 experts from the field. Reliability was done by test retest method. Reliability was found 0.8430 (84%). Pilot study was conducted on 60 school teachers to test feasibility of tool. Data collection was done after written consent from participants. Analysis and interpretation was done using descriptive and inferential statistics<sup>[9,16]</sup>.

### 5. Results

**Section A:** Total 540 secondary school teachers from 30 schools were included in the study. To avoid bias entire Pune city was divided in five regions viz. East, West, South, North and Central from each region corresponding schools and school teachers were included for the study. The demographic variables of the study revealed that the mean age of the school teachers is found to be 38.2 years. The sample distribution shows that out of 540 teachers majority 284 (52.6%) were between the age group of 35-44 years. Of the 540 responses 394 (73%) respondents were female teachers and 146 (27%) were male teachers. Teachers form English medium schools were in majority 309 (57%) followed by Marathi medium school teachers 231 (43%) of the 540 responses 399 (74%) of them had not been exposed to any type of first aid or disaster management programme, while nearly 141 (26%) had participated in some of the first aid training programme which was organized by school authority.

**Section B:** Distribution of Pre Test and Post Test score of Knowledge and Practices score is as follows.

Comparison of Pre & Post Test Score N=540



**Figure 1:** Distribution of Pre Test and Post Test score of Knowledge and Practices

The mean knowledge score obtained by school teacher in the pretest was 15.9 (53%), and in the post test score was increased to 24.07 (80%) The mean score of practices observed was 7.05 i.e. (47%) and post test score was 11.93 (69%) which concluded that there is an

improvement in knowledge and self-expressed practice on Disaster Management among school teachers.

**Table 1:** Comparison of Mean pre test and post test knowledge score

Parameter	Mean Scores		% Change
	Pre-Test	Post-Test	
Overall	15.9	24.07	51.38
Sex – M	14.82	24.14	47.01
Sex – F	16.42	24.04	64.77

The above table clearly indicates overall increase in knowledge of teachers after administration of manual designed by the Researcher. The overall increase in knowledge from Pre-Test to Post-Test is recorded as 51.38%, however increase in female teachers is quite higher than of male teachers i.e. 64.77% for females against 47.01% for males. In other words, this means that the female teachers have absorbed the manual more thoroughly than the male teachers.

Comparison of pre test post test Mean practice score

Sr. No	Parameter	Average Score		% increase
		Pre-Test	Post-Test	
01	Overall	7.05	11.93	69.92
02	Sex :- Male	7.05	11.93	69.92
	Female	7.05	11.93	69.92

From the above table it is interpreted that male and female teachers being equally competent in implementing self-expressed practices i.e there is no dominance of gender in self-expressed practices for a secondary school teacher.

**Question wise Break up of Knowledge by percentage**

- 1) Correct definition of disaster management was given by 27% respondents, while correct meaning given by 78% respondents.
- 2) It was observed that about 85% respondents could identify types of disasters.
- 3) Researcher asked question regarding phases of disasters only 42 % respondents could give correct answer.
- 4) Drop, cover and hold method is very simple way to save life during earthquake; unfortunately only 18% respondents could answer correctly.
- 5) Among the total respondents majority of them (96 %) knows to move higher level during floods to save life, while only 62% identified cause of death during floods is drowning.
- 6) Road traffic accident is biggest killer in Pune city is, fortunately 72 % teachers are aware of safe way of driving the vehicle but in practice scenario is different
- 7) Fire accident is common and fatal disaster in school, 73% respondents knows common cause of fire in schools.
- 8) 74% teachers knows best place to keep first aid box in schools.
- 9) Only 48 % respondents could able to give correct definition of first aid.
- 10) CPR is sure way of saving life when in cardiac arrest, 72% teachers could not know even full form of CPR.
- 11) Pouring water is only immediate treatment for burns, only 49% responded correctly.

- 12) Activation of EMS is only way to tackle road accident and other emergencies 41% responded correct toll free number of EMS.
- 13) Evacuation drill and school disaster management plan is safety initiative of the school, only 40% teachers were aware of school disaster management plan (SDMP).
- 14) Researcher asked fire emergency telephone number, 70% responded correctly.

**Question wise break up of self expressed practices by percentage**

- 1) Cell phone is nowadays become important electronic gadget carries by everyone, in case of emergency (ICE) number may be stored in phones e.g. ICE1,ICE2 etc Unfortunately only 33% respondents expressed correctly.
- 2) Display of emergency telephone numbers were not done in 80% of schools.
- 3) Only 41% of teachers undergone first aid training organized by school authorities.
- 4) Using mobile phone even by hands free mode is dangerous during driving a vehicle, 39% respondents not operating phones while driving.
- 5) Only 22% respondents expressed about recovery position.
- 6) Only 33% expressed need of school disaster management plan
- 7) Treatment of bleeding, burns and fractures correctly expressed by only 53% of respondents

**Section C**

**Table 1:** Statistical Significance of Knowledge and Practices

S.N.	Particulars	Knowledge	Self Expressed Practices
1	Mean Pretest score	15.9	7.05
2	Mean Posttest score	24.07	11.93
3	% of Change	51.38	69.92
4	SD	3.5	2.76
5	Calculated „t“value	19.69	14.88
6	Level of Significance	<0.05, <0.01	<0.05, <0.01
7	H <sub>0</sub>	Rejected	Rejected

For hypothesis researcher used paired, f<sup>\*\*</sup> test which calculated value for knowledge found 19.69 and for practices was 14.88 which is greater than table value(1.96) which was highly significant at both 0.01 and 0.05 level of significance so the hypothesis rejected. Thus providing that manual on Disaster Management is useful in increasing the level of knowledge and self-expressed practices<sup>[16]</sup>.

**6. Discussion**

The primary aim of this study was to determine the effectiveness of training manual on disaster management among secondary school teachers in Pune city. Semi structured questionnaire was administered. Majority of the school teachers were in middle age group with an average age of 38.2 and are heavily dominated by females. Overall mean knowledge score was 15.9 (53%) and self expressed

practice score was 7.05 (48%) indicated that teachers knowledge and self expressed practices are not at satisfactory level. Young teachers (below 25) and female teachers found more knowledgeable than their counterparts. The effectiveness of training manual was tested by pre test and post test scores. The mean knowledge score of pre test was 15.9 whereas mean post test knowledge score was 24.07 it indicates that there was 51% rise in the knowledge score clearly reveals effectiveness of training in improving the knowledge level of the school teachers.

Similarly pre test self expressed practice score was 7.05 and post test self expressed practice score was 11.93 showing increase by 69.92% clearly indicative of effectiveness of manual which is also proved by statistically. School safety is very important concern. Every school and community must take it seriously and strive continually to achieve highest safety in schools. Every school is unique by virtue of its teachers, students, location and culture. Teacher's role is very important in mitigating the hazards and disasters in schools. The teacher who is aware of disasters and its management can improve the practices successfully<sup>[10,12]</sup>.

Ghosh A and Bharar R (Burns 2000) reports that community awareness programme for the target group of ladies and teenage girls and school education programmes for the target group of school children of standard 8 in the steel producing city, Jamshedpur. He revealed that the formal Disaster Management training helps to improve the knowledge of the people. Based on the above study this current study was done and also found the overall post test knowledge mean was 24.07 higher than the pre test mean 15.9 and the standard deviation of the pretest & posttest knowledge level were respectively 3.67 & 5.56. After administration of manual the paired 't' value was 19.69 with the  $p < 0.005$  which was highly significant<sup>[7]</sup>.

The above findings support the findings of the present study, which indicates that training manual can help to improve knowledge and practices of teachers.

## 7. Conclusion

The researcher revealed a general lack of information among school teachers regarding disaster management so teacher should take initiative to improve their knowledge and practices by using booklet, posters, brochures, charts etc. for disaster safety education.

School authority should display all the important telephone numbers at prominent places of the school like ambulance, fire, disaster helpline etc. as researcher found that teachers were ignorant about emergency medical services available in the city.

## References

[1] Col. NK Parmer, Disaster Management, An overview, Jaypee Brothers, New Delhi, 253

- [2] Pala I, Vankar GK, "Epilepsy and teachers: A survey Indian J Pediatr" 2011 Mar Apr;64(2):211-4.
- [3] G.K. Ghosh, 'Disaster Management' A.P.H. Publishing Corporation, New Delhi 2015 pg 227
- [4] Suja Suresh "effectiveness of structured teaching programme on knowledge and practices of disaster management among school teachers" Nightingale Nursing Times, September 2010;6:6:44-57
- [5] Etsuko Tsunozaki capacity building and awareness raising for disaster reduction through formal education (Asian Disaster Risk Reduction Centre (ADRC) 2012
- [6] Disaster Management act 2005 (Govt of India)
- [7] Park K, Textbook of preventive and social medicine, 20<sup>th</sup> edition, Jabalpur, Bhanot publication, 2012, 700-730
- [8] Gandhi P. J. Disaster Mitigation and management Deep & Deep Publication Pvt Ltd new Delhi 2011
- [9] Neiswiadomy RM (2013) Foundation of Nursing Research 3/E Prentice Hall International Publisher London
- [10] International Strategy for Disaster Reduction – UNDP 3rd Edition 2006
- [11] International Strategy for Disaster Reduction – UNDP 3<sup>rd</sup> Edition 2012
- [12] Disaster Management Act, The Gazette of India, Ministry of Law and Defense New Delhi 2015
- [13] Disaster statistics: international strategy for disaster reduction-2005
- [14] Girijakumari S.: Educating Industrial Workers on selected first aid measures. Nightingale Times, 2012.
- [15] Refugees Handbook for Emergencies, United Nations High Commission Field Operation Geneva 2012
- [16] Dr. Badrinarayan S Pawar, Theory building and hypothesis specification in organizational studies, Sage Publication CA, 2012
- [17] Assessment of physical education faculty student's knowledge about first aid, J Egypt Public Health Association 2013; 68(1-2):101-18.
- [18] Etsuko Tsunozaki capacity building and awareness raising for disaster reduction through formal education (Asian Disaster Risk Reduction Centre (ADRC) 2013
- [19] Anilkumar parashar, Effective planned teaching programme on knowledge & practice of Basic Life Support among students in Manglore Nursing Journal of India Feb 2014:Vol.CI No 2 pg 40-41
- [20] <http://across.co.nz/WorldsWorstDisasters.html> 22/3/2014 1843hrs