7.1. Conclusions

7.1.1. 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.

7.1.2. A quasi-experimental study was undertaken by the researcher covering 540 teachers from 30 schools representing entire Pune city. For the study Pune city was divided into five regions namely central, south, east, west and north. While selecting the schools the researcher ensured the equal representation of all parameters. Among the 540 teachers 394 (73%) were female 146 (27%) were males. Teachers from state board 466, CBSE 54 and ISCE 20 were included.

7.1.3. 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. Knowledge was positively correlated with teaching experience and level of education of the teachers. Of the 540 respondents 26% had participated in first aid training programme but their knowledge level was not significantly more than those who have not undergone the training. Questionnaire was divided under three headings, concept of disasters, do's and don't related to disaster management and first aid and safety. Out of these three components first aid and safety knowledge among teachers was found very poor (42%)

7.1.4. 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.

7.1.5. 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.
7.1.6. The effectiveness of the manual was tested statistically at
0.01 and 0.05 level of significance which indicated that
training manual was effective in improving knowledge and
practices of the teachers.

7.1.7. 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.
Teachers 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.

7.2. Recommendations:

7.2.1. Use of Educational Material

The survey revealed a general lack of information among
school teachers regarding disaster management. This
highlights the need for disaster safety education. It is evident
that disaster has significant impact on school children.
Improvement in knowledge and practices of teachers equip
the teachers with knowledge of how to react if an emergency
situation arises. Teacher should take initiative to improve
their knowledge and practices by using booklet, posters,
brochures, charts etc. The school authority should provide such material to the teachers.

7.2.2. Display of Information in Emergencies

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

7.2.3. In case of Emergency (ICE) Mobile Number

It should be made mandatory to each Mobile Phone manufacturer to incorporate Toll Free ICE number (user friendly) in the software of Mobile phone. Provision also should be made to include more than one such ICE numbers before activation of Cell phone.

7.2.4. School Disaster Management Plan (SDMP)

Researcher observed that majority of the schools have been given low priority to disaster education. No disaster plan was available in surveyed schools. School authorities, therefore should take initiative and sensitize the school community (students, teaching and non teaching staff, management
staff and parents) regarding disaster preparedness and management. It is therefore strongly recommended that each school must prepare their own school disaster management plan (SDMP) and same should be updated on regular basis. The SDMP should consists the following components namely viz. SDM committee, safety assessment, evacuation map, formation and training of DM team and establishment of task force.

7.2.5. Mock Drill

Periodical mock drill and evacuation drill should be exercised in all the schools at least urban schools of the state in collaboration with concerned authorities such as Police, Fire brigade etc.

7.2.6. Collaboration

Capacity building is one of the WHO strategies for improving disaster preparedness. Indian Red Cross is universally recognized institution for capacity building of the communities. School authorities should collaborate with such agencies to raise awareness among the school teachers and students and every teacher must undergo such training.
7.2.7. Road Safety around the School

In Pune city, schools are located in very crowded areas, the approach road was found very narrow and school children commute by auto rickshaw or motorbike. Since large number of vehicles are found parked on the way to school creating unsafe environment to children. Traffic authorities should ensure that if any mishap occurs there should be way to enter ambulance or fire engine. Researcher strongly recommends that at least schools located in city should have one way traffic control around the schools up to the main road so that vehicles will come in one direction traffic mishap will be avoided. In addition to this speed breaker at the entrance of the school should be constructed to control on the speed.

7.2.8. Colour Code for School Bus

Every school should ensure that children coming to school must use school bus facility. School bus should have unique color code system (currently color code adopted is yellow) and every school must adhere to this norm.

7.2.9. Government Initiative

Government launched Universal access to basic education.

In the similar fashion safety initiative also must be worked by
expert committee and implemented in schools across the nation. In addition to above there should be comprehensive plan for disaster preparedness, strengthening capacities for disaster risk reduction and developing skills for making communities disaster resistant is need of an hour.

7.2.10. Disaster Management Training Programme

Disaster management education and awareness programme in the school should be designed and conducted for all the teachers in the country.

7.2.11. Pocket Manual for Emergencies

Every teacher must use pocket manual on disaster Management in emergency situation. School authority should prepare the pocket manual based on locational hazards in that area. The same manual can be used by teachers while teaching the subject of Disaster management.

7.2.12. Curriculum Modification

Subject of disaster management should be included in the curriculum from primary level onwards so that student will prepared for future disasters.
7.2.13. Adoption of Newer Methodologies

Various other means of creative educational interventions should be used to train the teachers on disaster management e.g. Video learning, online learning, games, workshops etc.

7.2.14. Capacity building

Capacity building should not be limited to professionals and personnel involved in disaster management but should also focus on building the knowledge, attitude and skills of a entire community to cope with the effects of disasters. In view of this researcher strongly recommends to consider entire community for capacity building. The concern authority should make note of it.

7.2.15. Structure of the School Building

In India, many educational institutions have sprouted of late. The institutions are not constructed with emergencies in view. These have space considerations at the back of their planning. Fire in Kumbhakonam School is a glaring example of how faulty the structure was and how the facilities were ill conceived. It should be made obligatory for the educational institutions to follow the following guideline
• A disaster mitigation plan has to be drawn up before every institution gets recognition.

• The disaster plan should reflect the organization and mitigation activities during all types of disasters.

• Safety index should be determined for each school. The school below safety standard may be identified and precautionary measures may be taken.

7.3. **Recommended practices for Disaster school education**

• First Aid Workshops, Training Programmes should be organized for the school teachers on regular basis simultaneously refresher training also to be conducted.

• Include community partners such as local government, Police Department, Fire Department and public health agencies in planning.

• Identify and address a range of events and hazards specific to the schools

• Develop multipurpose manuals with emergency management information that can be tailored to meet individual needs

• Utilization of existing outside developed resources: curriculum and educational material
• Preparedness efforts related to emergency drills and crisis exercises for staff, students and emergency responders
• Develop procedures for communicating with key stakeholders such as parents and students
• Conduct an assessment of vulnerabilities
• Conduct regular drills
• Identify and acquire equipment to mitigate and respond to emergencies
• Identify a storage location and replenish emergency supplies on a regular basis.

7.4. Limitations:
• Considering availability of time, financial component and availability of respondents following limitations were faced by the researcher.
• Only secondary schools were considered for the study.
• Knowledge and practices regarding disaster management is included in the study other components like attitude, culture and behavior were excluded.
• Instead of imparting actual training disaster management training manual was developed.
• Due to vast distribution of geographical area of Pune city sample size (540) and number of schools (30) were limited.
• Because of the language constraint of the researcher schools other than English and Marathi medium were excluded.

• In this study it was found that there is low level of knowledge among school teachers regarding disaster management with regional disproportinality. Therefore school based disaster education activities remains a phenomenon. The more researches are needed in this area.

7.5. Area for further research:

7.5.1. This study covered component of knowledge and practices of disaster management. Other components such as behavior, attitude and culture is open for research.

7.5.2. Some studies can be conducted to assess the school safety and security, school building, grounds, in which fire extinguishers, unsafe parking area etc should be assessed.

7.5.3. Similar study can be conducted among school students, college students, and general public. Taking into account entire country

7.5.4. Similar study can be undertaken as comparative study between Rural and Urban teachers.
7.5.5. Similar study can be conducted by using advanced technology like simulation, online learning, virtual classrooms etc.

7.5.6. There is urgent need for international data sets to provide sex-disaggregated data on disaster related mortality, morbidity and long term consequences.

7.5.7. Research is needed both at local and at national level on structural processes and factors that increase disaster vulnerability in women and men across different social groups.

7.5.8. Effects of funding, programming, training and the consequences of these for demographic variables in disaster situations is another important area that needs to be addressed by research studies.