

Disaster Preparedness and Response Knowledge, Attitudes, and Training Needs of Health Professionals in Southwest Ethiopia, 2014

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Project Summary

Background: Disasters cause serious physical, mental, social, environmental, and economic crises. Disaster medical training, an integral part of efficient disaster preparedness, is vital for health professionals to develop comprehensive skills for preventing and alleviating the complications of disaster. This study aimed to assess the knowledge and attitudes of health professionals in southwest Ethiopia regarding disasters and disaster preparedness, as well as training needs related to disaster preparedness and response.

Methods: The study employed an institution-based cross-sectional survey. A sample of 404 health professionals from randomly selected districts was interviewed using an interviewer-administered structured questionnaire. Nine out of 18 districts were selected randomly, from which, all health workers working at health office, hospital, and health center levels who were available during data collection were interviewed. Descriptive statistics and logistic regression analysis were computed to find associations between dependent and independent variables.

Results: Overall, 377 health professionals took part in the study, for a response rate of 93%. A majority (85.1%) could define the concept of disaster from various perspectives; 9.7% did not know the concept at all, and 5.2% could describe the concept only partially or inaccurately. Asked about the most common disasters, one-third (33.1%) mentioned transport accidents. Asked which disasters occurred less frequently, 52.3% mentioned disease epidemics, 34.4% mentioned transport accidents, and 41.2% mentioned fires. The

most common electrical and human causes of fires were reported as bad connections (54.6%) and unattended fires and cooking (61.8%). A majority (70.3%) of the health professionals thought that shouting for help was an appropriate action for a person in a fire. Less than one-quarter (23.1%) could explain the acronym “ABC” in first aid management of trauma. A total of 173 recent disease outbreaks, including malaria (35.3%), measles (32.9%) and diarrheal diseases (10.4%), were reported by 37.1% of the respondents. Respondents said there had been no recent drought (70.5%), fire (42.6%), flood (67.4%), explosion (80.9%), environmental pollution (63.1%), earthquake (83.3%), landslide (84.5%), or pest infestation (65.1%).

The majority (84.3%), agreed that disaster has direct public health consequences because they caused physical disability and psychological stress, increasing vulnerability to various contagious diseases, and exacerbating food insecurity. The environmental consequences of disaster mentioned by respondents were pollution (65.8%), ecosystem disturbance resulting in climate change (28.4%), and destruction of land and other natural resources (21%). A majority (91.5%) reported that destruction of infrastructure affects both the quality and availability of public health services.

Only 20.6% of the respondents had been trained on any disaster-related topic in the past 2 years, and 92.8% felt they needed additional training on disaster preparedness and response. Only 29.4% thought that they had inadequate knowledge about early warning information, preparedness, and response to common disasters, while 32.4% thought that they had medium knowledge and 38.2% thought that they had poor knowledge. The training topics ranked as most important were communication skills (76.9%), disaster management (67.6%), resource mobilization and health economics (58.9%), and risk analysis (56.8%).

Conclusions: This study clearly showed a knowledge gap among health professionals in understanding the concept of disaster and how to respond to specific disasters. Moreover, only a minority of the study participants had received focused training on disaster preparedness and response. According to the respondents, the most valuable training topics would be communication skills, disaster management, resource mobilization and health economics, and risk analysis.

1 Introduction

Training in disaster medicine as part of efficient disaster preparedness is vital for health professionals to prevent and alleviate disaster complications. In 2012, a study was conducted in Jimma Zone in southwest Ethiopia to assess the knowledge and attitudes of health professionals regarding disaster preparedness and response to identify gaps to address in training. The researchers worked with Jimma University and the local Red Cross Society, with funding from the Global Disaster Preparedness Center and Response 2 Resilience.

2 Project Outputs and Outcomes

This project created an opportunity for real-life collaborative work with key stakeholders, colleagues, and teammates, which in turn created an opportunity for peer learning and development. Hands-on practice of project management in the real world in collaboration with key partners helped the team understand gaps in health professionals' knowledge about and attitudes toward disaster preparedness and response. Generally, the stakeholders had a positive and encouraging attitude to working on issues related to disaster, which will guarantee collaborative interventions to address the gaps identified.

3 How Did You Achieve the Outputs and Outcomes?

Experienced and competent data collectors were recruited and trained. Supervisors closely followed up the field work daily, and the data management was meticulous. These interventions helped achieve the proposed aim of the study. The project was successful because of the strong collaborative effort of the investigators, data collectors, study participants, and partners, particularly the local/branch office of the Red Cross Society. The regular discussions held before and during the project made all the activities run smoothly. The involvement of the zonal Red Cross Society and Health Offices simplified the bureaucratic administration required to interview the selected health workers. These stakeholders helped by providing letters of support to the selected districts and facilities to allow the data collection to proceed and shared their experience in overcoming challenges faced in the process. The project finance managers at Jimma University had significant input into the financial management of the project.

4 What Did You Learn?

Overall, 377 health professionals took part in the study, for a response rate of 93%. A majority (85.1%) could define the concept of disaster from various perspectives; 9.7% did not know about the concept at all, and 5.2% could describe the concept only partially or inaccurately. Asked about the most common disasters, one-third (33.1%) mentioned transport accidents. Asked which disasters occurred less frequently, 52.3% mentioned disease epidemics, 34.4% mentioned transport accidents, and 41.2% mentioned fires. The most common electrical and human causes of fires were reported as bad connections (54.6%) and unattended fires and cooking (61.8%). A majority (70.3%) of the health professionals thought that shouting for help was an appropriate action for a person in a fire. Less than one-quarter (23.1%) could explain the acronym "ABC" in first aid management of trauma. A total of 173 recent disease outbreaks, including malaria (35.3%), measles (32.9%) and diarrheal diseases (10.4%), were reported by 37.1% of the respondents. Respondents said there had been no recent drought (70.5%), fire (42.6%), flood (67.4%), explosion (80.9%), environmental pollution (63.1%), earthquake (83.3%), landslide (84.5%) or pest infestation (65.1%).

The majority (84.3%) agreed that disaster has direct public health consequences by causing physical disability and psychological stress, increasing vulnerability to various contagious diseases, and exacerbating food insecurity. The environmental consequences of disaster mentioned by respondents were pollution (65.8%), ecosystem disturbance resulting in climate change (28.4%), and destruction of land and other natural resources (21%). A majority (91.5%) reported that destruction of infrastructure affects both the quality and availability of public health services.

Only 20.6% of the respondents had ever been trained on any disaster-related topic in the past 2 years, and 92.8% felt they needed additional training on disaster preparedness and response, Only 29.4% thought that they had inadequate knowledge about early warning information, preparedness, and response to common disasters, while 32.4% thought that they had medium knowledge and 38.2% thought that they had poor knowledge. The training topics ranked as most important were communication skills (76.9%), disaster management (67.6%), resource mobilization and health economics (58.9%), and risk analysis (56.8%).

5 Immediate Impact

The project generated systematic evidence on disaster response and preparedness knowledge and attitudes of health professionals. It also facilitated collaborative and peer learning. The strong interest of key stakeholders, particularly, the Red Cross Society, ensures that similar work can be carried out much more smoothly in future.

6 Future Impact

This work will be submitted to a peer-reviewed journal to reach target audiences so that other researchers can explore the problem further. Depending on the availability of funding, the investigators will work with the Federal Government of Ethiopia, major partners working on disaster in the study area, and other relevant professionals and practitioners to prepare short training courses focusing on the identified gaps.

7 Conclusions

This study clearly showed a knowledge gap among health professionals about the concept of disaster and response to specific disasters. Although most respondents had a good understanding of the public health consequences of disaster in general, few had more than limited understanding of the concept of disaster and response to specific disasters. The fact that the majority considered shouting for help an appropriate action in a fire, and about one-quarter could not explain the acronym “ABC” in first aid management of trauma, illustrate this conclusion. About one-third had inadequate knowledge of early warning information, preparedness, and response regarding common disasters. In addition, they had limited opportunities for training on topics related to disaster. Communication skills, disaster

management, and resource mobilization and health economics were the training topics they ranked as most important.

8 Implications for the future

Based on the findings, training is recommended for the health professionals, focusing on the gaps identified. There is a need to work closely with other relevant sectors to respond promptly and effectively to frequent disasters such as traffic accidents and fire. The health sector in particular needs to assess its implementation of the national intervention strategies against malaria, measles, and diarrheal diseases. Researchers who are interested in the field are encouraged to conduct a similar study involving sectors other than health in order to gain a comprehensive understanding of the situation in the zone.

10 Publications

A final report was completed, and a manuscript is being prepared for submission to a peer-reviewed journal for wider visibility.

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Appendix 1. Questionnaire

Assessment of Disaster Response Knowledge, Attitude, and Training Needs among Health Professionals in Southwest Ethiopia

Informed Consent Form

Instruction: Read and give a copy of the full information sheet to the participants.

INTRODUCTION:

Good morning/good afternoon! My name is _____ and I am working for Jimma University. Researchers from Jimma University are conducting an applied research on Disaster Preparedness and Response in collaboration with the Ethiopian Red Cross Society (ERCS) Oromia Region, Jimma Zone Branch Office. The purpose of the study is to understand the knowledge level, attitude, and training needs of disaster response among health professionals in Jimma Zone. So, I am serving as a field researcher to collect the required data from selected health facilities and Woreda Health Offices.

You are one of the eligible participants for this interview, which may take 20–30 minutes. You do not have to take part in this research if you do not wish to do so, or you can withdraw at any time after starting the interview, and refusing to participate will not affect you in any way. If you feel uncomfortable about sharing any of the information, you have the right to decide not to answer any question. This will not result in you being treated differently during the study or any other time. The information provided in this study is strictly confidential.

This research has been reviewed and approved by the Jimma University Ethical Review Committee. If you have any questions about your rights as a research participant, you may contact the Principal Investigator, Professor Kifle Woldemichael, telephone 0935123168.

Therefore, do you agree to participate in this discussion? Yes _____ No _____
If yes, continue interviewing but if no, say thank you and go to next.

SECTION A: GENERAL INFORMATION

Name of interviewer:

Questionnaire ID:

Name of the Woreda:

Name of the organization/institution:

Date of interview:

Starting time: Ending time: (All in local time)

Respondent Profile

Age: _____

Sex: 1. Male 2. Female

Marital status: 1. Single 2. Married 3. Divorced 4. Widowed 5. Separated

Current job position:

Working years in the current organization:

Total working years in all organizations you employed in.....

Highest level of education attained (please choose one): 1. Certificate 2. Diploma 3. Bachelors 4. Masters 5. Other (specify) _____

Field of study/profession: 1. Nurse 2. Health Officer 3. Medical Doctor 4. Environmental Health 5. Other (specify)_____

SECTION B: INFORMATION ON DISASTER PREPAREDNESS AND RESPONSE

1) What do you understand by “disaster”?

2) How would you rate the frequency of occurrences of the following disasters in your locality? Please rate each of the items by ticking: 1=Very frequent, 2=Frequent, 3=Less frequent, 4=Not at all.

Disaster category	Frequency			
	1	2	3	4
Epidemics				
Drought				
Transport accidents				
Fire				
Flood				
Explosion				
Environmental pollution				
Earthquake				
Landslide				
Infestation				

3) What are the possible public health consequences of a disaster for humans, for the environment, and for infrastructure?

1. Humans _____

2. Environment _____

3. Infrastructure _____

- 4) If there has been any recent fire accident in your locality, what caused it?
 1. Electrical cause 2. Human cause 3. There was no fire accident recently in my locality.
- 5) The most common electrical causes of fire accidents include *(multiple responses are possible)*:
 1. Broken and dirty insulators 2. Loose flexible wiring 3. Perishable or damaged insulation of wiring 4. Bad connections, e.g., overloading
- 6) The most common human causes of fire accidents include *(multiple responses are possible)*:
 1. Smoking 2. Cooking and unattended fire 3. Aerosols and flammable liquids 4. Careless handling of and playing with fire 5. Misuse of appliances
- 7) Have there been any recent outbreaks of diseases in this locality? 1. Yes 2. No
- 8) If yes, mention at least one _____
- 9) Disaster preparedness includes:
 1. Material reserve 2. Community rescue training and knowledge propagation 3. Population vulnerability assessment 4) Other (specify) _____ 5. Don't know
- 10) Population vulnerability assessment does not include:
 1. Popularize disaster rescue knowledge in community 2. People's self-aid capacity in disaster rescue 3. The improvement of laws and regulations 4. Emergency reservation and preplan 5. The extent and type of disaster 6. Don't know
- 11) Which is the appropriate action for a person in a fire accident?
 1. Shout for help 2. Jump out of a window 3. Cover mouth and nose with wet towels, crawl along the wall to safety exit 4. Hide in a closed office 5. Struggle to put out the fire 6. Other (specify) _____ 7. Don't know
- 12) Rate your level of agreement on the following items about pre-hospital (or pre-health facility) fire management and hospital- (or health facility-) based fire management by ticking: 0=Don't know; 1=Disagree; 2=Uncertain; 3=Agree.

Pre-hospital (or health facility) fire management includes:	Level of agreement			
	0	1	2	3
Organize and establish control authority.				
Extinguish the fire.				
Conduct a rapid needs assessment.				
Search and rescue and evacuate the victims.				
Provide initial triage and first aid to the victims.				
Transport victims to a health facility.				
Use available resources and mobilize others if needed.				
Hospital- (or health facility-) based operations of fire management include:				

Activate hospital (or health facility) contingency plans.				
Assess the magnitude, severity, and number of victims.				
Establish advance teams to the fire site.				
Establish a receiving mechanism and prepare the admission ward.				
Identify the burn emergency team.				
Treat and manage victims according to degree of burns.				
Refer patients to higher health institutions.				
Establish special burn treatment centres.				
Alleviate shock by fluids, transfusion, surgery, etc.				
Certify death, if any, and provide mortuary facilities.				
Keep records and inform appropriate the authorities.				
Monitor, evaluate, and rehabilitate.				

13) What does the abbreviation “ABC” refer to in first aid management of trauma victims?

The first step of cardiopulmonary resuscitation during emergency situations is:

1. Supply oxygen
2. Closed cardiac massage
3. Artificial respiration
4. Open airway
5. Cerebral resuscitation
6. Don't know

15) Which of the following should not be done during hemostasis of a trauma victim using a tourniquet?

1. The tourniquet should be directly tied at the bleeding limb.
2. Tightness of tourniquet is appropriate when distal pulse can't be touched.
3. The ligature time is not more than 1 hour or 12 minutes' slack every 1 hour ligature.
4. Transported patients should have clear signs to make sure ligature time.
5. Don't know

16) Read each of the following activities that are required for an outbreak investigation and tick one of the numbers from 1 to 10 to indicate its proper order/step.

Required activities for outbreak investigation	Rank/order of activities									
	1	2	3	4	5	6	7	8	9	10
Prepare for field work.										
Establish the existence of an outbreak.										
Verify the diagnosis.										
Define and identify cases.										
Analyze data collected in terms of time, place, and person.										
Develop hypotheses.										
Evaluate the hypotheses.										

Refine the hypotheses and carry out additional studies.																			
Implement control and prevention measures.																			
Communicate findings.																			

- 17) Which of the following is a post-disaster epidemic prevention strategy? (Multiple responses are possible)
1. Prevent intestinal infection: Wash hands, kill flies, sterilize food and water
 2. Prevent insect-borne diseases: Mosquito control, vaccination
 3. Prevent respiratory infectious disease: Keep warm, use large amounts of antibiotic for prophylaxis
 4. Prevent post-traumatic diseases: Timely injection of tetanus antitoxin, wound debridement, anti-inflammatory
 5. Prevent zoonosis: Rat proofing, deratization, de-insectization, mosquito control
 6. Don't know
- 18) If there have been any recent disease outbreaks in this locality, which institutions played a part in its management?
- _____
- 19) Which other institution/organization should have been involved for better management and response?
- _____

SECTION C: TRAINING NEED/DEMAND

- 20) Have you ever had any short training on disaster preparedness and response? 1. Yes 2. No
- 21) Have you received any short-term training on disaster preparedness and response during the past 2 years?
1. Yes 2. No 3. Don't remember
- 22) If yes, on which of the following disasters did you receive the training?
1. Fire 2. Flood 3. Drought 4. Outbreak 5. Traffic accidents 5. Other (specify) _____
- 23) How do you rate your knowledge about early warning information, preparedness, and response for the following disasters?

Your knowledge regarding:	Adequate	Medium	Poor
Early warning indicators of a flood disaster is			
Preparedness for a flood disaster is			
Response to a flood disaster is			
Preparedness for disaster due to traffic accident is			
Response to disaster due to traffic accident is			
Preparedness for a fire disaster is			

Response to a fire disaster is			
Early warning indicators of occurrence of drought is			
Preparedness for a disaster due to drought is			
Response to a disaster due to drought is			
Early warning indicators of an outbreak is			
Preparedness for an outbreak is			
Response to an outbreak is			

24) Do you think you need additional training on disaster preparedness and response? 1. Yes
2. No

25) If yes, which of the following contents are you interested in? (Multiple responses are possible)

1. National and local disaster reduction and preparedness plans
2. Basic principles of disaster assistance
3. Treatment principles and first aid skills
4. Rescue and transport of the wounded
5. On-site triage
6. Post-disaster psychological relief
7. Post-disaster epidemic prevention
8. Other (specify) _____

26) If yes, which of the following training modalities would you prefer?

- 1) Face-to-face short-term training
- 2) Online or distance learning
- 3) On-the-job or on-site training
- 2) Other (specify) _____

27) In-service short courses in the areas below may help build strong disease response teams. Please rank the need for each of these in-service training areas in your institution.

Areas of training	Not important	Little importance	Important	Very important
Leadership skills				
Risk analysis				
Resource mobilization and health economics				
Disaster management				
Field epidemiology and ecosystem health				
Communication skills				

28) Please include any general comments that you may have.



THANK YOU FOR YOUR TIME!