Original Article

Awareness and Practice Regarding Prevention of Water Borne Disease Among Earthquake Victims at Sindhupalchowk District

Sah Bimala Kr.[1]
Giri Jelina[2]
1. Lecturer, Maharajgunj Nursing Campus
2. RN, Australia

Abstract

This study was conducted in Sindhupalchok district which was severely affected by two high magnitude earthquakes and victims were living in a tent. They were at risk from outbreak of water, sanitation and hygiene related diseases due to reduced access to safe water and sanitation system. The objective of this study was to assess the awareness and practiceon prevention of water borne disease among earthquake victims.

A descriptive cross-sectional study was conducted among 68 earthquake victims by using non-probability purposive sampling technique. A pretested structured questionnaire was used to collect the data by interviewing. Data was analyzed using descriptive analysis with Statistical Package for Social Science version 16.

The findings revealed that mean age of respondents was 35.82 ±11.63 years. The majority of them (52.9%) were female; 57.35% were literate; and 51.5% were housewives and involved in agriculture. Regarding awareness and practice, the majority (82.4%) were adequately aware and 17.6% were moderately aware about waterborne diseases. This study also showed that 94.1% had good practice and 5.9% had moderate practice for prevention of waterborne diseases.

In conclusion, though most of the respondents was aware and had good practice on prevention of waterborne diseases, most of them drank water without purification. So local health facilities need to initiate awareness program on prevention of water borne diseases especially on purification of water.

Key words: Awareness, Earthquake victims, Practice, Prevention, Water borne disease.

Introduction

Nepal is highly vulnerable to various types of disasters, e.g. floods, landslides, earthquake, fire, and climate change. According to the disaster vulnerability and risk assessment study report, globally Nepal ranks 11th among countries most vulnerable to earthquakes (WHO, 2015).

Major disasters results in displacement of large number of population which gives rise to risk of outbreaks. The underlying risk factors are unavailability of clean drinking water and overcrowding, poor sanitation, primary health issues of the residents, and available services of healthcare (Watson, Gayer, & Connolly, 2007).

The cholera epidemic that followed the 2010 Haiti earthquake made more than 170,000 people sick and more than 3,600 died. In Asia after the 2011 Great Eastern Japan Earthquake and Tsunami, outbreaks of acute respiratory infection (ARI) and acute gastroenteritis occurred in evacuation shelters (Kawano, Hasegawa, Watase, Morita, & Yamamura, 2014).

Disruption of usual water sources and contamination of water by open defecation, sub-optimal latrines and/or damaged sewage infrastructure may result

in unsafe drinking water, increasing the risk of exposure. Sindhupalchowk District had experienced the highest number of earthquake related deaths i.e. 3440 deaths, 1571 injured and 63885 houses were completely damaged (Health Emergency Operation Centre, 2015).

After earthquake, displacement of population, environmental changes, unplanned and overcrowded shelters, poor water supply and sanitation conditions, poor nutritional status or inadequate personal hygiene, all lead to develop the risk of water borne diseases. There were often urgent need to run health camp, assess the health status of the displaced populations, educate the victims and provide materials for water purification process to prevent any outbreaks of waterborne diseases. There are no research papers published related to water borne diseases before the beginning of the study so this study was an attempt to research on the awareness and practice regarding prevention of water borne diseases among earthquake victims at Sindhupalchowk District.

Methodology

A descriptive cross-sectional study design was adopted to assess the awareness and practice on prevention of water borne diseases among the earthquake victims in Sindhupalchowk, Nepal. The study period was from July 2015 to February 2016. Non- probabilitypurposive sampling technique was used for data collection. Total sample were 68 respondents of Irkhu Village Development Committee (VDC), Sindhupalchowk. Before proceeding to data collection, the formal permission was taken from Research Committee of Nepalese Army Institute of Health Sciences, from concerned authority of respective VDC and verbal informed consent was also taken from each respondent prior interviewing. Confidentiality was maintained throughout the study.

Interview questionnaire was prepared in English and translated into Nepali version. Data was analyzed using descriptive analysis with SPSS (version 16). Interpretation of the data was done on the basis of analyzed data and the findings were presented on the relevant tables. Adequate level of awareness and practice was analyzed according to the response given by the respondents. One mark was given for each correct answer and 0 was given for each wrong answer.

During analysis, respondents' score was categorized as adequate awareness and good practice if respondent answered >75% questions correctly, moderate awareness and moderate practice if answered 50-75% questions and unaware and weak practice if answered <50% of the questions (Kaur et al., 2015).

Results

Table 1 : Socio-demographic Characteristics of Respondents

n= 68

Variables	Number	Percent
Classification of age 20-29	29	42.6
30-39	14	20.6
40-49	12	17.6
50-59	13	19.1
Gender		
Male	32	47.1
Female	36	52.9
Literacy Status		
Illiterate	2	2.9
Informal education	27	39.7
Primary	10	14.7
Secondary	19	27.9
Intermediate	7	10.3
Bachelor & above	3	4.4
Occupational Status		
Housewife	2	2.9
Agriculture	8	11.8
Housewife + Agri-culture	35	51.5
Student	4	5.9
Service	19	27.9
Monthly income		
3000-5000	13	19.1
>5000	55	80.9
Number of people living in a tent 5	40	58.8
>5	28	41.2

Table 1 shows that the majority of the respondents (42.6%) were from the age group 20- 29 years, while the least (17.6%) were from 40-49 years, mean (SD) age was 35.82(±11.63). Majority (52.9%) were female. Similarly, the majority (57.35%) were literate and 51.5% were housewives and involved in agriculture. The 41.2% of respondents lived with more than 5 members in a tent.

Table 2 :Awareness on Different Types of Waterborne Diseases

n= 68

Variables	Number	Percent
***Heard about waterborne disease**		
Diarrhea	68	100
Dysentery	57	83.8
Cholera	61	89.7
Jaundice	32	47.1
Typhoid	51	75.0
Worm infestation	50	73.5

* *Multiple Response*

Table 2 shows that respondent gave diverse responses on different waterborne diseases. Respondent heard about water borne diseases as diarrhea (100%) and jaundice (47.1%). Similarly, The majority (89.7%) heard as cholera and 83.8% of respondents as dysentery respectively.

Table 3 : Awareness on the Causes, Signs and Symptoms, and Prevention of Waterborne Diseases

n=68

Variables	Number	Percent
***Causes of waterborne diseases**		
Contaminated drinking water	57	83.8
No hand washing	68	100
Open defecation near water sources	54	79.4
Symptoms of waterborne diseases		
Loose stool	66	97.1
Abdominal pain	66	97.1
Vomiting	43	63.2
Fever	57	83.8
***Preventive measures of waterborne diseases**		
Good sanitation	63	92.6
Hand washing	68	100
Prevent from flies	48	70.6
Clean water	68	100
Water Purification	65	95.6

* *Multiple Response*

Table 3 shows that all respondents replied that waterborne diseases were caused by no hand washing (100%). Other causes include; consumption of contaminated drinking water (83.8%) and open defecation near water sources (79.4%). Similarly, respondents believed that loose stool (97.1%) and abdominal pain (97.1%) are the symptoms of waterborne diseases followed by fever (83.8%) and vomiting (63.2%). Regarding preventive measures, all respondents stated that consumption of clean water (100%) and hand washing (100%) are the most important measures for the prevention of water borne diseases. Other preventive measures reported by respondents were water purification (95.6%), good sanitation (92.6%) and prevention of contamination of food from flies (70.6%).

Table 4 :Practice on Prevention of Waterborne Disease

n= 68

Variable	Number	Percentage
Sources of drinking water		
Public Tap	68	100
Purification of drinking water		
Yes (boiling method)	4	5.9
No	64	94.1
Store drinking water		
Cover it with lid	68	100
Latrine Facility (septic tank)	68	100
Dispose liquid waste safely	68	100
Open space	4	5.9
Kitchen garden	64	94.1
Dispose Solid Waste Safely		
Yes (by burning and burying method	68	100
Wash Hands After Defecation		
Yes(using soap water)	68	100

Table 4 shows that public tap is the source of drinking water for all respondents (100%) and the majority of respondents (94.1%) did not purify drinking water. All respondents covered stored drinking water with lid. It also showed that entire (100%) respondents had latrine facility with septic tank and also disposed solid waste safely by burning and burying methods. Likewise 94.1% respondents disposed liquid waste safely in the kitchen garden while (5.1%) threw in open space away from their household. It also showed that entire 100% respondents washed their hands with soap and water.

Table 5 : Level of Awareness and Practice on Prevention of Water borne Disease

n=68

Variables	Number	Percent
Level of Awareness		
Adequate (>75%)	56	82.4
Moderate (50 to 75%)	12	17.6
Level of Practice		
Good Practice (>75%)	64	94.1
Moderate Practice (50-75%)	4	5.9

Table 5 shows that the majority (82.4%) of the respondents had adequate awareness on prevention of waterborne diseases. Similarly, majority of them (94.1%) had good practice on prevention of waterborne diseases.

Discussion

In this study, the majority of the respondents was from age group 20-29 years, {mean (SD) was 35.82(±11.63) years}. The majority of them were female (52.9%) and literate (57.35%). 41.2% of respondents lived with more than 5 members in a tent.

Regarding awareness, the majority of respondents had heard about the various types of waterborne diseases; diarrhea (100%), dysentery (83.8%), cholera (89.7%), jaundice (52.9%), typhoid (75%) and worm infestations (75%). These findings are different from the similar study conducted in North West Cameroon which showed that respondents heard about diarrhea (20%),typhoid (60%) cholera (25%) and dysentery(8%) are the water borne diseases (Fonyuy& Innocent, 2014).

Similarly, the respondents stated that cause of waterborne disease was by drinking contaminated water (83.8%), similar to research conducted in North West Cameroon also concluded that contaminated drinking water (85%) was the most common cause of waterborne disease (Fonyuy& Innocent, 2014).

Regarding sign and symptoms of water borne disease, fever (83.8%) and diarrhea (93.1%)were the main signs and symptoms and it is slightly different than the findings of study conducted in Iran that showed fever (81.91%) and diarrhea(63.76%) as the main sign and symptoms of waterborne disease respectively (Cheragi et al., 2014).

This study showed that the majority (82.4%) had adequate knowledge and (17.6%) had moderate knowledge on prevention of waterborne disease similar findings of research conducted in Bangalore which showed that the majority (91.67%) of respondents had adequate knowledge and (8.33%) had moderate knowledge on prevention of waterborne disease (Kaur et al., 2015).Awareness about types of waterborne disease, its causes, sign and symptoms, and its prevention was adequate which may be due to community already had an outbreak and there were also many national and international disaster relief agencies launched an awareness campaign as it was one of the highly earthquake affected District.

With regards to practice, it showed that 100% respondents consumed water from the public tap and 94.1% did not purify drinking water as they believedthat natural resources of water are the pure water for drinking. In contrast to the study done in West Cameroon as only 33% did not purify their drinking water (Fonyuy& Innocent, 2014). Similarly 100% of respondents covered the drinking water with lid which was similar with the findings of study conducted in Haryana as (96.8%) respondent covered drinking water (Bharti et al., 2013).

This study also showed that 100% respondents had latrine facility and with septic tank. This might be due to the fact that many organizations like UN Habitat with the assistance of UNICEF helped earthquake victims in building sanitary toilets. In contrast to the findings of study conducted in Jhapa district as (53.2%) had no latrine facility. Furthermore, this present study also showed that most of the respondents had knowledge of safe water and sanitation, used soap and water for hand washing after defecation (100%) which is almost similar with the findings the study conducted in Jhapa district as (76.92%) used soap and water (Sah

et al., 2013).

Furthermore, the majority (94.1%) had good practice and (5.9%) have moderate practice on prevention of waterborne disease.

Conclusion

Based on study findings, it can be concluded that the majority of respondents had heard about the various types of waterborne diseases like diarrhea, dysentery, cholera, jaundice, typhoid and worm infestations. Regarding causes, sign and symptoms, and prevention, adequate level of awareness was found which might be due to many national and international disaster relief agencies launched an awareness campaign in this community as it was one of the highly earthquake affected district. With regards to practice, all respondents consumed water from the public tap and most of them did not purify drinking water. Most of the respondents covered the drinking water with lid, had latrine facility with septic tank, used soap and water for hand washing after defecation. Though most of the respondents were aware and had good practice on prevention of waterborne diseases, therewas still lack of practice especially on purification of drinking water so local health facilities need to initiate awareness program on prevention of water borne disease especially on purification of drinking water to maintain good practice.

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