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Assessment of Knowledge, Attitude and Practice (KAP) of Disaster Preparedness among Rwanda Red Cross Employees, Rwanda

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Abstract: ***Disasters have been always a public health issue for humanity and it has been observed that one of means to fight them is to be prepared before they strike. This study assessed the knowledge, attitude and practice of disaster preparedness among Rwanda Red Cross employees. It is a cross sectional and descriptive study realized in 70 persons working for Rwanda Red Cross. Data have been obtained from respondents and entered the questionnaire produced into SPSS then analysed. The findings showed that 38.6 % of respondents have experience in Red Cross for more than 10 years, 58.6% of respondents do not have any experience in disaster preparedness, 58.6% of respondents do not have any training in disaster management, 54.3% of respondents need to know about disaster plan and 57.1% of respondents do not know how frequent drills are performed in Rwanda Red cross and 100% of respondents have willingness to provide first aid if disaster strikes. In conclusion, based on the results there is lack of minimum training in disaster preparedness for Rwanda Red Cross employees and it is recommended to Rwanda Red Cross to implicate all employees in disaster preparedness knowledge and practice.***

Keywords: Assessment, Disaster, Preparedness, Rwanda Red Cross

1. Introduction

Disaster preparedness which corresponds to all measures taken to prepare for and to reduce direct and/or indirect effects of disasters, allows the community, government and non-government institutions to predict and where possible to prevent them. That is to respond to and effectively cope with the consequences of disasters. It requires the contribution of many different areas ranging from training and logistics to health care and institutional capacity building. [1],[2].

According to the recent data on disasters worldwide, it has been indicated that in 2016, 342 registered disasters have been caused by natural hazards. Among these natural disasters, the number of meteorological disasters was 96, hydrological disasters were 177, geophysical disasters were 31 and climatological disasters were 38. The total number of affected populations was estimated to 569.4 million being the highest number of affected people by natural disasters in 10 previous years. This increase of natural disasters concurred with the occurrence of drought in India affecting most of population in 2016. It has been remarked that the majority of people affected were from middle and low income countries representing more than a half of total population affected in 2016. Asia the continent most hit having 46.7%, followed by America with 24.3%, Africa having 16.9%, Europe having 8.2% and Oceania having 3.8%[3].

2. Literature Review

According to OCHA publications in 2017 two categories of disasters increased that is earthquakes and floods. Floods have predominated in number of disasters related to climate change, Asia and America have been the most frequently hit regions, Asia being twice hit compared to America. The top two countries by number of affected populations worldwide were the USA with 85.1 million and China with 72.1 million. [4].

Not only natural disasters are hitting the world population, according to the World Health Organization, road traffic injuries are the ninth leading cause of death globally, claiming the lives of more than a million people each year on the roads[5], [6].

Concerning man-made disasters, about 38 extremely violent political conflicts occurred in 2016. The number of people who became refugees and internally displaced during such violence and conflicts increased by 0.3 million to reach the unprecedented 65.6 million people globally. The majority of refugees found in 2016 were from Somalia, South Sudan and Sudan. Of these 3 countries, the number of refugees from South Sudan was the most to increase by 64% during the second half of 2016[7].

In Africa, between 1995 and 1996, thirty nine countries had epidemic outbreaks that have affected the total number of 576.5 million people. There is the so called meningitis belt having 20 countries with 384 million people who are susceptible to epidemics with incidence rates of 1% and high case fatality rising up to 10%. Droughts are permanently frightening about 460 million people in 30 countries, while 484 million people are living in 22 countries that are prone to floods. For the war, this is number one African principal manmade disaster. Statistics show that between 1990 and 1996, 730 million people were touched by armed conflicts and most of these conflicts continue to be because the countries are at war or suffering the consequences of violence in neighbouring countries [8].

According to the International Emergency Events Database [9], about 479 million people have been affected in Africa by five major hazards and among them nearly a million have lost their lives in the period of 1960 to 2015.

Regarding, east African region, according to the data provided by East African Community, this region is prone to natural disasters such as floods, earthquakes, strong winds, droughts, lightening and their secondary impacts of disease and epidemics. In 2008-2010 Kenya had damages and losses occasioned by droughts that have been estimated to 12.1 billion in USD [10].

In 2010 and 2011, several landslides and mudslides due to heavy rains occurred in Rwanda resulting in destruction of houses and infrastructure in Western and North provinces of Rwanda. In 2002, the eruption of Nyiragongo volcano in DRC caused damages with 400,000 Congolese population fleeing to Rwanda [11]. Severe floods that occurred in May 2012 in Rwanda had negative impacts on crops, water quality and vector risk especially malaria, infrastructure destruction, loss of properties and death of people [12].

According to the Ministry of disasters management and refugees affairs in Rwanda, disasters in Rwanda have been always dominated by landslides, floods, droughts, fires, earthquakes, diseases and epidemics, lightning and thunderstorms, traffic accidents and heavy rain with strong winds that disrupt life of population and its livelihood, destroying diverse infrastructures and interrupting economic activities and delaying development efforts[13].

Rwanda has been affected by a number of natural and man induced disasters occasioning the loss of lives, properties and displacement of people. Floods have been increasing in frequency and their occurrence in 2005 and 2007 in Musanze and Rubavu District resulted in the damage of infrastructure, agricultural losses and environmental degradation [14], [15].

Rwanda Red Cross Society as one of humanitarian organizations whose mission is to alleviate human suffering through its programmes of disaster management, first aid, emergency medical services, health and care service, food security and livelihood must have its employees and volunteers especially first responders well prepared to respond to any disasters situations that may occur in the country.

3. Methods

Study and simple design

This study used a descriptive, cross-sectional design using quantitative aprroach methods. It was run in Rwanda within Rwanda Red Cross base at its headquarters in Kigali, Rwanda. All employees fullfilling selection criteria were included in this study. A representative sample population was determined to permit drawing conclusions. In the current study a simple size has been calculated using Yamane[16], simplified formula to get simple size as follows: $N=N/1+N(e^2)$ where n is the simple size, N is the population size, e is the level of precisión, N =85 with margin of error 5%. From this formula, the sample size for our population is 70 employees in total. The Simple random sampling technique was used to determine which individual to be included in the study using the list of all employees of Rwanda Red Cross as provided by the human resources department in alphabetic order. The random number generator was used to pick in the list and the following link has been used http://www.unit-conversion.info/texttools/random-number-generator/.

Data collection instrument

Questionnaire for data collection was established and respondents were approached one by one and directly data entry done as interviewed. The questionnaire was created using SPSS software programme versión 21. The questionnaire was divided into four parts: the first part of questionnaire provided information about socio-demographic data and general information of respondents, second part evaluated the knowledge of participants about the disaster preparedness, the third part evaluated the attitude of respondents about the disaster preparedness and the fourth part evaluated the practice of participants about disaster preparedness. An interview has been done for each each participant approached and data entry done.

Ethical considerations and data analysis

The participation in this current study was voluntary, independent and anonymous. Data were collected confidentially upon informed consent of participants, the name and address of the participant was not mentionned on the questionnaire to keep confidentiality. The participant had all rights to withdraw from the study pool at any time and there was no financial motivation to participate in the study. The data were collected upon approval of Rwanda Red Cross administration. Data were analysed into SPSS versión 21 and presented in forms of frequencies and percentages into tables.

Research results

A total of 70 respondents were recruited in the study and the participation rate was 100% of employees who participated in this study.

Socio-demographic data and general information of respondents

The Table 1 below indicates the socio-demographic data and general information of respondents including the age group of respondents, gender of respondents, marital status of respondents, level of education of respondents, experience in Red Cross of respondents and their experience in disaster preparedness.

Table 1: Socio-demographic data and general information of respondents

Variable	Frequency(N=70)	Percentage
Age group of respondents		
18-27	8	11.4
28-37	19	27.1
38-47	33	47.1
48-57	8	11.4
58-67	2	2.9
Sex of respondents		
Male	46	65.7
Female	24	34.3
Marital Status of Respondents		
Married	52	74.3
Single	18	25.7
Level of education		
Secondary school	14	20
University level	56	80

Experience in Red Cross of respondents		
Less than 1 year	19	27.1
1-2 years	2	2.9
3-5 years	1	1.4
5-10 years	21	30
Above 10 years	27	38.6
Experience in disaster preparedness		
1-2 years	2	2.9
3-5 years	1	1.4
5-10 years	24	34.3
Above 10 years	2	2.9
None	41	58.6

Table 1 above shows the socio-demographic and general information of respondents, the predominant age group of respondents is 38-47 followed by 28-37 age group with respectively 33(47.1%) and 19(27.1%) of respondents. The most frequent sex of respondents is males with (46)65%, most of respondents are married 52(74.3%) and most of them have university level 56(80%).

Most of respondents have experience in Red Cross more than 10 years 27(38.6%) but most of respondents have no experience in disaster preparedness 41(58.6%).

Knowledge of respondents about disaster preparedness

Table 2 below shows the knowledge of respondents about disaster preparedness and the variable such as training on disaster management(DM), knowledge of disaster, disaster plan, drills, disaster preparedness and first aid provision during disaster have been evaluated and findings are found below.

Table 2: Knowledge of respondents about disaster preparedness

Variable	Frequency(N=70)	Percentage
The respondent had DM training before		
Yes	29	41.4
No	41	58.6
Respondents know what is disaster		
Yes	57	81.4
No	13	18.6
Respondents know what is a disaster plan		
Yes	30	42.9
No	40	57.1
Respondents know where to find a plan		
Yes	29	41.4
No	41	58.6
Respondents know what is drills		
Yes	53	75.7
No	17	24.3
Respondents know their function during a drill		
Yes	30	42.9
No	40	57.1
Respondents know what is the disaster preparedness		
Yes	57	81.4
No	13	18.6
When should be given first aid during disaster event		
Immediately	57	81.4
In hospital	13	18.6
Who should give first aid during a disaster		
Healthcare worker	13	18.6
Bystanders including the community	57	81.4

Table 2 above indicates that most of respondents are not trained in disaster preparedness 41(58.6%), the majority of respondents know what is disaster 57(81.4%), most of respondents do not know the disaster plan 40(57.1%), most of respondents do not know where to find disaster plan 4141(58.6%), most of respondents know what is drills 53(75.7%), most of respondents do not know they function in drills 40(57.1%), most of respondents know what is disaster preparedness 57(81.4%), most of respondents know that first aid is provided immediately after the disaster and most of them 57(81.4%) say that first aid should be provided by bystanders.

Attitude of respondents about disaster preparedness

Table 3 below shows the attitude of respondents about disaster preparedness and it assesses attitude on disaster planning, training on DM, drills, first aid and disaster plan updates.

Table 3: Attitude of respondents about disaster preparedness

Variable	Frequency(N=70)	Percentage
Respondents need to know about disaster plan		
Agree	38	54.3
Unsure	32	45.7
Management should be adequately prepared when a disaster occurs		
Agree	57	81.4
Unsure	13	18.6
Disaster planning is for few people in Rwanda Red Cross		
Disagree	38	54.3
Unsure	32	45.7
Potential hasards likely to cause disaster should be identified and dealt with		
Agree	38	54.3
Unsure	32	45.7
DM training is necessary for all RRCS employees and first responders		
Agree	38	54.3
Unsure	32	45.7
DM training necessary only for DM service staff		
Disagree	38	54.3
Unsure	32	45.7
Respondents think it is necessary to have a disaster plan		
Agree	57	81.4
Unsure	13	18.6
Disaster plans need to be regularly updated		
Agree	38	54.3
Unsure	32	45.7
Disasters are unlikely to happen in our country		
Agree	27	38.6
Disagree	30	42.9
Unsure	13	18.6
Disaster management is for DM service staff only		
Disagree	38	54.3
Unsure	32	45.7
Drills should be conducted in RRC		
Agree	38	54.3
Unsure	32	45.7
Respondents believe that it is necessary to provide first aid immediately when disaster strikes		
Yes	38	54.3
Unsure	32	45.7
Respondents have willingness to provide first aid for disaster victims		
Yes	70	100

Table 3 above shows that most of respondents expressed the need to know about disaster plan 38(54.3%), most of respondents agree that the management should be prepared 57(81.4%), most of respondents disagree that the management of disasters is for few people 38(54.3%), most respondents 38(54.3%) have positive attitude about disaster preparedness, drills, first aid, disaster management and disaster plan, 100% respondents have willingness to provide first aid when disaster strikes.

Practice of respondents about disaster preparedness

Table 4 below shows the practice of respondents vis-à-vis disaster preparedness, it evaluates practice of drills, training, disaster plan, their frequencies and updates. Details are found in the table below.

Table 4: Practice of respondents about disaster preparedness

Variable	Frequency(N=70)	Percentage
Disaster drills are done at RRC		
Yes	37	52.9
Don't know	33	47.1
Frequency of drills at RRC		
Occasionally	30	42.9
Don't know	40	57.1
Is there ongoing DM training		
Yes	6	8.6
No	22	31.4
Don't know	42	60
Frequency of DM training		
Occasionally	28	40
Don't know	42	60
Is the disaster plan regularly updated by RRC authority		
Yes	6	8.6
Don't know	64	91.4
Frequency of disaster plan updates		
Regularly	6	8.6
Don't know	64	91.4
Respondents have ever faced a disaster		
Yes	50	71.4
No	20	28.6
Respondents have been worker of disaster management team		
Yes	29	41.4
No	28	40
Don't know	13	18.6
Respondents know the latest disaster RRC was involved in		
Yes	37	52.9
No	33	47.1
Respondents believe that their practice for disaster preparedness is insufficient		
Yes	32	45.7
No	6	8.6
Don't know	32	45.7
Disaster training should be a part of education in Rwanda		
Yes	57	81.4
Don't know	13	18.6
When you met an event of disaster what did you do		
Give first aid	37	52.9
None	33	47.1

Table 4 above indicates that almost half of respondents 37(52.9%) reply that drills are done in Rwanda Red Cross, most of respondents 40(57.1) don't know the frequency of drills, most of respondents 42(60%) don't know about the frequency of DM training, 41.4% are part of disaster response team and 52.9% of respondents have given first aid when they met a disaster.

4. Discussions of Results

The results of this current study are comparable to the results of other authors who researched on disaster preparedness especially knowledge, attitude and practices studies. The following studies results are comparable to the ones found in current study with minor differences and major differences in percentages depending on how people are implicated in activities allowing them to increase the knowledge, attitudes and practices about disaster preparedness.

A study done in Italy on assessment of disaster preparedness among emergency departments of Italian Hospitals, showed that 45% of respondents knew what an emergency plan is and 41% knew who is in charge to activate the plan [17]. A study done in Pakistan indicated that 92.3% of participants knew what is a disaster plan, 64% of respondents knew what is the disaster plan, 37.8% knew where to find a disaster plan, 46.2% of participants didn't know what is a drill and 37.8% did not know their function during a drill. Most of participants 60.9% knew what a disaster preparedness is [18].

A study done in India on the assessment of knowledge regarding disaster preparedness showed that 100% of respondents knew what a disaster is, 92% knew what a disaster plan is, 51.7% knew where to find a disaster plan, almost all respondents did know what is a drill and their function during a drill [19].

A study run in China showed that less percentage of respondents estimated to 5% were well prepared for emergency and 52% of respondents didn't know what to do in case of emergency [20].

A study done in Philippines showed that 35% of respondents agree and 15% of respondents strongly agree that they have participated in disaster risk reduction education training or seminar [21].

A study done in Yemen on emergency and disaster management showed that 32% of Yemeni health professionals did not have good knowledge and 53.5% had fair knowledge of disaster management[22].

A study done in Myanmar specifically in Northern Rakhine state showed that most of respondents were well aware of the natural hazards present in their area with 94% of participants able to cite the types of disasters occurring in their region[23].

A study done in Nigeria showed that almost a half of respondents 47.8% have good knowledge of emergency planning and preparedness and 15.1% of participants with poor knowledge about disaster preparedness and planning[24].

A study done in one of hospitals of Ethiopia regarding disaster preparedness showed that 50.8% of respondents have good knowledge about their hospital disaster

preparedness and their plan and the remaining percentage of respondents have low knowledge on this subject (49.2%). [25].

Concerning attitude about disaster preparedness, a study done in India in 2016 on disaster preparedness showed that 80% of respondents agreed to the need to know about disaster plan, 94.2% agreed that management should be adequately prepared for a disaster, 90% believed that managing disaster is for all people in the institution, 77% said that training is needed for all employees. Only 65.5% said that drills should be conducted in their institution [19].

Regarding attitude of health care workers on disaster preparedness, a study performed in Ethiopia showed that the general attitude of respondents towards disaster preparedness was highly positive at the level of 64.8% favourable attitude [25].

In Yemen, a study done on emergency and disaster management showed that there an overall good attitude towards disasters among respondents with 84.9% of respondents who agreed on the teaching of disaster management programme in Yemen and most of respondents need to know about emergency plan and their role during a disaster event [22].

A study done in Saudi Arabia on knowledge, attitude and practice of emergency staff regarding emergency and disaster preparedness, revealed that about 6.3% of respondents did not have any interest to be aware of emergency or disaster plan, 11% agreed that planning and management of disaster is for few people in their hospital and 34.9% said that the disasters are unlikely to occur in their hospital [26].

A study done in Nigeria on knowledge, attitude and practice of health professionals about disaster preparedness showed that their attitude was positive with 93.3% of respondents believing that they need to know about emergency plans, feeling that plans have to be regularly updated, simulations often done in hospital and staff trained in disaster preparedness [24].

For practice about disaster preparedness, a study done in India showed that 100% of respondents said that disaster training should be part of education, few respondents knew that drills are practised in their institution less than 10% and no one was aware of the type of drills done. Most of respondents didn't know about updates of disasters plan estimated to 94.2%, 73.5% have never faced a disaster and 97.7% were not in disaster management team [19].

Another study done in Pakistan showed that 69.2% of respondents did not know that a disaster drill is done in their hospital and only 2.6% knew the type of drill conducted in their hospital and most of participants did not know about the practice of disaster preparedness training[18].

In Philippine, a study showed that 43.3% and 7.5% of respondents respectively agree and strongly agree that they have actively participated in disaster risk reduction campaigns and 31.6% disagree about participation in such campaigns [21].

A study done in Malaysia showed that 56.1% of respondents emergency nurses had adequate practice of disaster management [27].

Nofal [26] in Saudi Arabia showed that around 81% of respondents said that there has been disaster drill exercise in their hospital and more than 60% said that there was periodic updates of emergency plans and ongoing training on emergency preparedness and disaster.

A study done in Tikur Anbessa Hospital in Ethiopia showed that the disaster preparedness practice was too low in the hospital and 8.3% of participants have evidenced this. The few number of respondents about 12.6% have shown that the hospital organized training or workshops about disaster preparedness. [25].

Conflict of interest: None declared

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Author Profile

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