Knowledge of health care providers in the Kindu health zone about the threat of Ebola disease

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SUMMARY

Ebola is one of the notifiable viral haemorrhagic fevers. The occurrence of a known or suspected case of viral haemorrhagic fever must be reported immediately. Between the years 1976 and 2018, DRC recorded 10 epidemics of Ebola viral haemorrhagic fever, the largest of which occurred in the year 2018. Declared by the WHO as a public health emergency of international concern, the 2018 epidemic is considered the most serious in terms of the number of cases and deaths reported since the discovery of the virus on [1] October 2019, with a total of 3197 VHE cases reported, 3083 confirmed cases and 114 probable cases, including 2136 fatal cases (overall case-fatality rate of 67%).

The general objective is to assess the level of knowledge of the health staff of the Kindu health zone about the Ebola virus disease. Through a descriptive cross-sectional study of 70 health care providers based on a questionnaire survey the results revealed that 6 out of 10 health care providers surveyed have limited knowledge, about 3 out of 10 respondents have affordable knowledge and only about 1 out of 10 respondents have good knowledge. Based on this result, we conclude that the preparatory work for the prevention and containment of Ebola disease in the Kindu health zone is perceived as inadequate by the health care providers.

Keywords: Knowledge - providers - threat - disease - virus -Ebola

Introduction

Ebola is one of the notifiable viral haemorrhagic fevers. The occurrence of a known or suspected case of viral haemorrhagic fever must be reported immediately [1]. The disease can affect both humans and non-human primates (monkeys, gorillas and chimpanzees). The origin of the virus is unknown, but available evidence suggests that fruit bats (Pteropodidae), monkeys and chimpanzees are the likely host of the virus [2].

With an incubation period between 2 and 21 days, an average of 8 to 10 days is observed [3, 4]. Ebola is a highly contagious and fatal disease. The lethality rate is up to 90% and the recovery period is long and painful [5].

Over the past two decades, epidemics of various types have occurred around the world. From 15 to 21 December 2014, 19,497 confirmed, probable or suspected cases of Ebola disease were reported in 4 affected countries (Guinea, Liberia, Mali and Sierra Leone) and 4 previously affected countries (Spain, United States of America, Nigeria and Senegal) [6].

From 1976 to 2014, a succession of epidemics occurred in five countries in Equatorial Africa for a total of 2455 cases including 1633 deaths, a case-fatality rate of 66.5%. The repercussions of the Ebola VHF sometimes go beyond African borders. In 2014, the series of outbreaks of Ebola viral haemorrhagic fever were reported in some West African countries, including Guinea, Liberia, Sierra Leone had rapidly spread to Nigeria, Mali, Senegal and had even led to contamination outside the African continent: the United States, Spain, the United Kingdom and Italy. See "Ebola Outbreak Status Report - 21 October 2015" [7].

Between March 2014 and May 2016 it is estimated that between 15,000 and 20,000 deaths due to VHF are likely to occur between March 2014 and May 2016. Data on the disease was very difficult to access in rural areas and even a hostility to receiving doctors and teams of doctors from the WHO was evident in most regions.

Between 1976 and 2018, the DRC recorded 10 epidemics of Ebola VHF, the largest of which has been ongoing since 2018. Declared by the WHO as a public health emergency of international concern, the current epidemic is considered the most serious in terms of the number of cases and deaths reported since the discovery of the virus. As of 1 October 2019, a total of 3197 cases of Ebola VHF had been reported - 3083 confirmed cases and 114 probable cases, including 2136 fatal cases (overall case-fatality rate of 67%). Of the total number of confirmed or probable cases, 56% (1790) were women, 28% (906) were children under 18 years of age, and 5% (161) were health workers. [5].

Major issues contributing to the spread of the disease include the lack of knowledge and understanding of the disease by communities and the lack of experience of health workers. One of WHO's strategies for a response to the epidemic is to update and revise public health information packages based on an accurate assessment of communities' knowledge, attitudes, practices and behaviours [4].

D. Piţigoi et al. (2018) in their studies on the assessment of knowledge, attitudes and perceptions regarding Ebola disease among health workers in a tertiary care hospital in Romania found that almost all respondents (99.4%) had heard of Ebola and 96.8% correctly identified the etiological agent as a virus. Its potential for human-to-human transmission was recognised by 99.4%, while 26.1% had correctly identified both the viral etiology and transmissibility. Most of the respondents said they had heard of Ebola for the first time before the 2014 epidemic (65.8%), almost a third of them during the epidemic (29.5%) and a small minority after the epidemic (4.7%, of which 1.3% were resident doctors and 3.4% nurses. The potential transmission routes identified by the respondents were direct contact with infected bodily fluids (100%), contact with wild animals in Africa (72.6%) and direct contact with infected but asymptomatic patients (64.7%). None of the respondents considered Ebola

to be foodborne, but 54.8% confused it with an airborne disease and 7% with a waterborne disease . Only 0.9% considered that wild animals in Romania can transmit the disease, 19.1% blamed African mosquitoes and 11.5% said that the routes of transmission are not fully understood. The most frequent signs cited were fever (98.7%), myalgia (82.2%) and haemorrhages (79.6%) [13].

Methodology

Nature of the study

This was a descriptive cross-sectional study of health care providers in the Kindu health zone. A questionnaire survey with different sections was administered to them. The initial questionnaire will be tested before it is finalized.

Framework of the study

The ZS of Kindu is one of the 18 ZS that make up the province of Maniema. It extends over two communes: the commune of Kasuku and the commune of Mikelenge with a surface area of 78km2. The population of the Kindu health zone is urban-rural, estimated at 270,777 inhabitants, with a density of 3,561 inhabitants per km2 (annual report 2017), distributed in 11 health areas, each with a functional health centre.

Selection Criteria

1. inclusion criteria

This study will include health care providers from available hospital and health centre facilities in the Kindu health zone who have agreed to be part of the study.

2. Exclusion criteria

Not included in our study will be providers who refused to be part of our study and those who were absent at the time of data collection.

Sampling

Statistical unit

In order to carry out this study, we targeted the service providers in the few health facilities in the Kindu health zone that will form our statistical unit.

Sample size

The sample size will be defined by the SCHWARTZ formula $N \geq \frac{z_{\alpha}^2 p.q}{d^2}$ **SCHWARTZ.D,1960 [26]. with p the proportion of health care providers = 0.035 according to the data of the evaluation of health care service provision 2017-2018 carried out by the Kinshasa School of Public Health [23]; q=1-p = 1-0.035 =0.965;** α**=0.05 ;** z_{α}**=1.96 and d=0.05,** $n \geq \frac{1,96^2 0,22.0,78}{0,05^2}$ **= 52.**

Taking into account the non-response factors, we anticipate that 10% of the subjects will be over 52, i.e. 5, hence n = 57 of the staff. For convenience, we round the size to 70.

Sampling technique

We used the 3-stage probability sampling technique.

At the first level: We made a random selection of 30% of the health areas (for reasons of limited financial resources), i.e. 4 health areas within the 11 health areas in the Kindu health

zone, including the health area in which the general reference hospital is located, which was selected systematically.

At the second level: random selection of 2 health centres out of 4, 10 hospital centres out of 20 located in the 4 health areas drawn at the first level in the Kindu health zone and systematic choice of the general hospital of reference.

At the third level: systematic selection of care providers in health facilities drawn at the second level from the sample frame of care providers and the sampling frame.

RESULTS

This chapter presents the results of our work in two sections: the first section focuses on univariate analysis or the description of the different characteristics of the health care providers surveyed, and the second section is devoted to assessing levels of knowledge of the results obtained.

Table 1. Distribution of respondents according to their knowledge of the signs of virus ebola disease.

Variables	Terms and conditions	n= 70	%
Headaches			
	Yes	41	58,6
	No	29	41,4
Intense fatigue			
	Yes	37	52,9
	No	33	47,1
Fever			
	Yes	65	92,9
	No	5	7,1
Joint pain			
	Yes	6	8,6
	No	64	91,4
Bleeding or hemorrhaging			
	Yes	31	44,3
	No	39	55,7
Skin rashes			
	Yes	11	15,7
	No	59	84,3
Vomiting			
	Yes	48	68,6
	No	22	31,4
Diarrhoea			
	Yes	36	51,4
	No	34	48,6
Abdominal pain			
	Yes	17	24,3
	No	53	75,7
Muscle aches and pains			
	Yes	5	7,1
	No	65	92,9

This table shows that 58.6% of the respondents recognised headaches as a sign of VME; 52.9% spoke of intense fatigue, fever was recognised as a sign of the disease by 92.8%, joint pain 8.6%, bleeding or haemorrhaging 44.3%, rash 15.7%; vomiting 68.6%, diarrhoea 51.4% and pain 31.4%.

Table 2. Distribution of respondents according to their assessment of the level of severity of the virus ebola disease.

Variables	Terms and condi	n= 70	%
Assessment of the level of severity of the VME			
	Never mind	2	2,9
	Grave	30	42,9
	Very serious	38	54,3

From this table, we can see that 54.3% of the respondents reported the level of severity of the **virus ebola disease** as very serious.

Table 3. Distribution of respondents according to their knowledge of the modes of transmission of virus ebola disease

Variables	Terms and conditions	n= 70	%
Handling of bushmeat			
	Yes	33	47,1
	No	37	52,9
By physical contact with the body fluids of a VME patient			
	Yes	67	95,7
	No	3	4,3
Through contact with dead bush animals			
	Yes	38	54,3
	No	32	45,7
By contact with a person who is ill with Ebola			
	Yes	44	62,9
	No	26	37,1
Sexual intercourse			
	Yes	25	35,7
	No	45	64,3

Table No. 3, on Knowledge of modes of transmission of virus ebola disease, tells us that 52.9% of respondents did not recognize bushmeat handling as a mode of transmission of virus ebola disease. With regard to physical contact with the body fluids of a virus ebola disease patient, 95.7% of respondents answered yes that the body fluids of a virus ebola disease patient is a mode of transmission of virus ebola disease. For contact with dead bush animals, out of 100% of respondents only 54.3% agreed that contact with dead bush animals is a mode of transmission of virus ebola disease. In addition, for contact with a person with Ebola disease, it should be noted that 62.9% of respondents knew that contact with a person

with Ebola disease is a mode of transmission of virus ebola disease. And finally, for sexual intercourse, the majority, i.e. more than 7 out of 10 people say that sexual intercourse is a mode of transmission of virus ebola disease.

Determining the level of knowledge about VME

The graph below tells us after the compilation of the different knowledge that 6 out of 10 care providers have limited knowledge, about 3 out of 10 respondents have affordable knowledge and only about 1 out of 10 respondents have good knowledge.

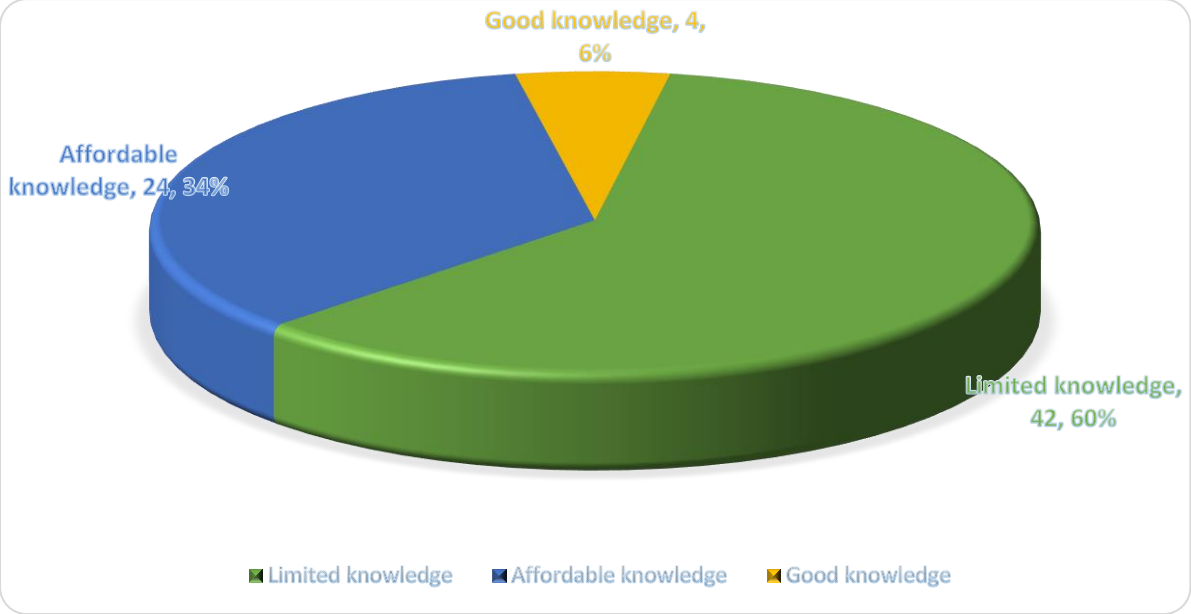

Figure 1Level of knowledge about VEM among respondents

DISCUSSION

The present study sought an inventory of the actual (not assumed) knowledge of health workers about VME in the province of Maniema in the Kindu health zone.

Socio-demographic characteristics

Our study revealed that the female sex was the most represented with a frequency of 55.7%, a sex ratio of 1.26 in favour of women. These results are similar to those found in Germany 54.8%, in Ghana 57.7% (10.15); in Romania with an overall predominance of women 91.7%, reflecting to some extent the over-representation of women in the health sector [13], in India 157 (61.1%) were women [30].

In our study the age group over 40 years was the most represented with a frequency of 41.4% and an average age of 41 ± 9 years with extremes ranging from 18 to 75 years. These results are similar to those of a study conducted in Nigeria where the average age of the respondents was 35.3 years [14] and in Romania the median age (IQR) of the respondents was 41 years (33.5-47) [13]. In a study conducted in Lagos, Nigeria, the average age of respondents was 40.1 ± 10.9 years [29]. However, these results differ from those found by Almamy K at Gabriel Toure's university hospital, where 32.4 of the respondents were between 26 and 30

years old [15], and in Moba in the DRC, the average age of the respondents was 32 ± 2.1 years [16].

Regarding the marital status of the respondents, 77.1% were in a union. These results are similar to those found in Romania where most respondents were married (66.9%) and had children (68.8%) [13]. However, these results are higher than those of EDS II DRC where the overall proportion of respondents aged 15-59 years was 58.2% [31]. This difference may be due to the fact that the majority of the respondents in our study were over 40 years old.

With regard to religion 92.9% of the respondents were Christian, these results corroborate with those of EDS II or, as far as religion is concerned, about 91% were Christian with more than one in three women (37%) and one in three men (34%) declared themselves to be "other Christians" [31]. This could be explained by the fact that this group is made up of the followers of the revivalist churches, which are growing rapidly throughout the country.

As for the category of personnel surveyed, 71.4% were nurses, compared with 28.6% of doctors. This is a corollary to the gender of the respondents, who are mostly women with a predisposition to the nursing profession. These results are similar to those of the study conducted in Romania where the majority of respondents were nurses (63.7%) [13], in Moba in the DRC nurses (75.8%) were predominant [16] and the others were doctors (36.3%), while in India the majority of respondents were doctors (n = 117, 45.5%) [30]. This situation of the predominance of nurses could be explained by the multiplicity of medical education schools compared to the medical faculty, the short duration of the organization of teaching in medical technical schools compared to the medical faculty and the financial accessibility of medical technical schools compared to the medical faculty.

In our study, only about 3 out of 10 health workers surveyed said that a person cured of VME continues to be contagious, similar to the findings in Mali where Almamy K found that 40% of respondents thought that a patient cured of VME could still transmit it [15] and in the CPPA study [29] in Nigeria 34%.

In this study, the compilation of different knowledge shows that 6 out of 10 health workers have limited knowledge, about 3 out of 10 respondents have affordable knowledge and only about 1 out of 10 respondents have good knowledge. These results corroborate with those of H. Rezaeipandari (2019) on Health workers' knowledge and attitudes towards Ebola disease, The mean knowledge score of the participants was 25.16 ± 3.58 (range 0 to 46) [32]. In India, the overall knowledge of health providers was poor (mean knowledge score: 6.57 ± 2.57) [30]. These results are far different from those found in Nigeria, where overall 72.5% had good knowledge [29].

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