

# Knowledge and Awareness of Ebola Virus Disease among Medical Students

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## ABSTRACT

**Aim:** To assess the knowledge of 4th year MBBS students about Ebola virus disease.

**Study design:** Descriptive cross-sectional study

**Place & duration of study:** Lahore Medical & Dental College, Lahore over a period of two weeks in March 2015.

**Methods:** 153 students of 4th year MBBS, academic session 2014-15 were included in the study. Data was collected using a structured questionnaire. Data was entered and cleaned in SPSS 21.

**Results:** It was observed that good number of respondents was aware that virus belonging to family filoviridae is causative agent and incubation period is 2-21 days. Half of the respondents knew that mode of transmission is human to human. A good number of respondents 91 (59.5%) were aware that health workers are most at risk and 119 (77.8%) respondents were aware that personal protective equipment are required for EVD patients. A good percentage of respondents 79 (51.6%) had the knowledge about clinical picture, 88 (57.5%) respondents about prevention, 122 (79.7%) respondents about control and 94 (61.4%) respondents about WHO's recommendation of Ebola virus disease care.

**Conclusion:** Medical students have a good knowledge about Ebola virus disease transmission, prevention and WHO's recommendations about health workers and travelers.

**Keywords:** Ebola virus, medical students, structured questionnaire.

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## INTRODUCTION

Ebola virus disease is caused by a negative RNA virus belonging to the family Filoviridae and its genus is Ebola virus. It is a very febrile and hemorrhagic disease which mostly affects humans and also named as Ebola Hemorrhagic fever. Ebola virus has five species named as Bundibugyo, Zaire, Reston, Sudan and Tai Forest. The incubation period in humans ranges from 2-21 days. The Zaire Ebola virus has caused 55 to 88 percent mortality rate whereas Sudan Ebola virus is responsible for 50 percent case fatality rate in four known outbreaks, In 1970's two in Sudan, in 2000 one in Uganda and another in 2004 in Sudan.

In 1976, the disease was first appeared as an outbreak in Sudan and Democratic Republic of Congo simultaneously and it reported 602 cases and 431 deaths. In Congo, the disease appeared near the Ebola river hence was given the name "Ebola" (1). The West African virus was a part of the Zaire Ebola virus lineage which was isolated from Central African virus around 2004 (2).

In Guinea, Sierra Leone and Liberia, the Ebola virus disease outbreaks were largest in history with 9,911 cases (5,477 laboratory confirmed) and 4,868

deaths as of 19<sup>th</sup> October 2014 (3). As Ebola virus disease is a zoonotic disease so transmission in humans is through blood, feces, secretions, organs or body fluids of the infected animals. Handling of infected animals such as chimpanzees, gorillas and fruit bats are the main sources of Ebola virus disease outbreaks in Africa.

Transmission to humans is through human to human after receiving the virus from animal's source. Humans can also receive infection from burial ceremonies by direct contact with dead and recovered patients can transmit infection up to six months after recovery. Outside East and Central Africa, Ebola virus disease is reported first time in Nigeria. In this largest outbreak of Ebola virus more than 1000 people were killed in West Africa and this outbreak showed most persistent killing (4). Globally preparedness plans and measures are undertaken by many far distant countries. Asia has constantly increasing connections with West Africa and such an outbreak of EVD in an Asian country which has well prepared surveillance and infection control measures will not cause damage on such a huge scale. One hypothesis regarding the import of EVD in Asia is related to the workers who return to their homes in Asia and big threat is from Philippines workers. Ebola has known animal to human transmission as appeared in Africa so Asia also has the same threat because of the existence of same animal reservoir in Asia. Ebola virus disease outbreaks appeared as a

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single jump from animal to human. Conventionally, the virus is transmitted from a bat reservoir to an accidental human host by another primate but not always the same.

In Africa and in the Philippines the implicated reservoirs are fruit bats. In Bangladesh, antibodies against Ebola Zaire virus and Reston virus has been detected in 5 of 274(3.5%) bats but none of them was detected by polymerase chain reaction (PCR). In China, antibodies against Ebola virus was detected in 32 of 843 bat samples. Orang utans in Indonesia showed IgG specific antibodies against all the five species although they were apparently healthy. Delivering the worldwide awareness and lessons learnt from African outbreaks, any exported case to Asia will not cause significant local transmission in distant countries with strong health system(5). World Health Organization (WHO) is giving emphasis on awareness and knowledge about Ebola virus disease and development of a health care system to meet the consequences of any single case of this disease in far distant countries where even a single case of this disease is not yet confirmed or suspected(6).

## OBJECTIVE OF STUDY

The objective of the study was to assess the knowledge among 4<sup>th</sup> year M.B.B.S students at Lahore Medical & Dental College about Ebola virus disease.

## RESEARCH METHODOLOGY

A descriptive cross-sectional study was conducted at Lahore Medical & Dental College, Lahore during two weeks in March 2015. Data was collected from 153MBBS students of fourth year session 2014-2015 selected through convenience sampling technique. A structured questionnaire was used for data collection. Data was entered and cleaned in SPSS 21 statistical package and was described in the form of frequencies and percentages. It was presented in the form of tables and figures.

## RESULTS

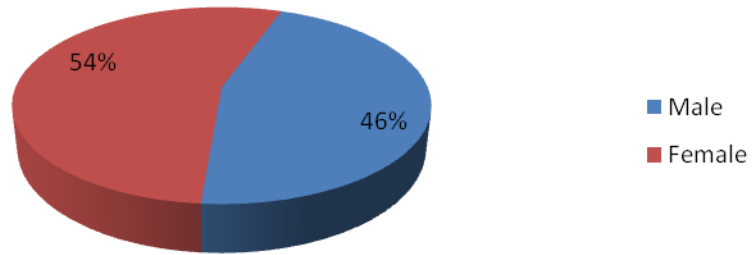
In the present study, out of 153 respondents, there were 70(46%) males and 83(54%) were females (Fig. 1). It was observed that 120(78.4%) respondents correctly named the causative agent for Ebola virus disease as virus belonging to family Filoviridae and 84(54.9%) respondents were aware that incubation period of EVD is 2-21days. Among 153 medical students, 91(59.5%) had the knowledge that health workers are most at risk during an outbreak of EVD. 88(57.5%) respondents were aware that hand washing with soap and water is basic step for its

prevention but 122(79.7%) had good knowledge about its control. When inquired about WHO's recommendation about EVD care then 94(61.4%) respondents correctly answered that professional care in a treatment centre is recommended. A good number of respondents 119(77.8%) had the knowledge about protective equipment required when caring these patients and 122(79.7%) respondents correctly answered about WHO's general travel advice (Table 1). In the present study, 79(51.6%) respondents knew that sudden onset of fever, intense weakness; muscle pain, headache and sore throat are clinical features of Ebola disease (Fig. 3).

Table 1: Knowledge of 153 medical students regarding EVD

Knowledge about Ebola virus disease	n
<b>Causative agent for Ebola Virus Disease</b>	
Virus belonging to family Filoviridae	120(78.4%)
Rota virus	19(12.4%)
Rubella virus	11(7.2%)
Wolbachia pipientis	3(2.0%)
<b>Incubation period of Ebola Virus Disease</b>	
15 days	52(34.0%)
2-21 days	84(54.9%)
30 days	6(3.9%)
25 days	11(7.2%)
<b>Who is most at risk during an outbreak of Ebola Virus Disease</b>	
Health workers	91(59.5%)
Family members	49(32.0%)
Mourners	10(6.5%)
Relatives	3(2.0%)
<b>Basic steps needed for Ebola Virus Disease prevention</b>	
Vaccine for Ebola Virus	47(30.7%)
Use antibiotics	8(5.2%)
Licensed medicine	10(6.5%)
Hand washing with soap & water	88(57.5%)
<b>Basic steps needed for Ebola Virus Disease control</b>	
Daily bath with Dettol	22(14.4%)
Exposure to sunlight for at least 8 hrs a day	7(4.6%)
Disease surveillance & information sharing, technical assistance	122(79.7%)
Drink plenty of water	2(1.3%)
<b>Protective equipment required when caring for pts</b>	
Personal protective equipment PPE	119(77.8%)
Mosquito nets	21(13.7%)
Mosquito repellents	13(8.5%)
Air sprays	00(00%)
<b>WHO's recommendation about Ebola virus disease care</b>	
Home care	20(13.1%)
Professional care in a treatment center	29(19.0%)
Midwifery care	10(6.5%)
Isolation of the patient	94(61.4%)
<b>WHO's general travel advice</b>	
Travelers should avoid all contacts	122(79.7%)
Travelers should keep contact	2(1.3%)
Travelers get vaccinated	25(16.3%)
No advice for travelers	4(2.6%)

Figure 1: Male to female ratio of 153 medical students



In the present study 77(50.3%) respondents were aware of the human to human transmission of Ebola virus (Fig. 2).

Figure 2: Mode of transmission

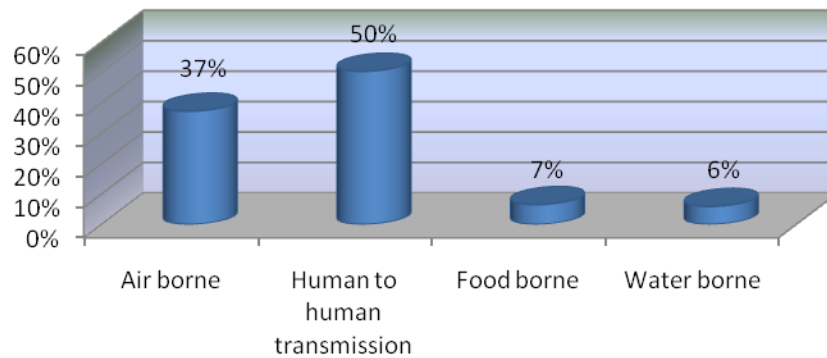
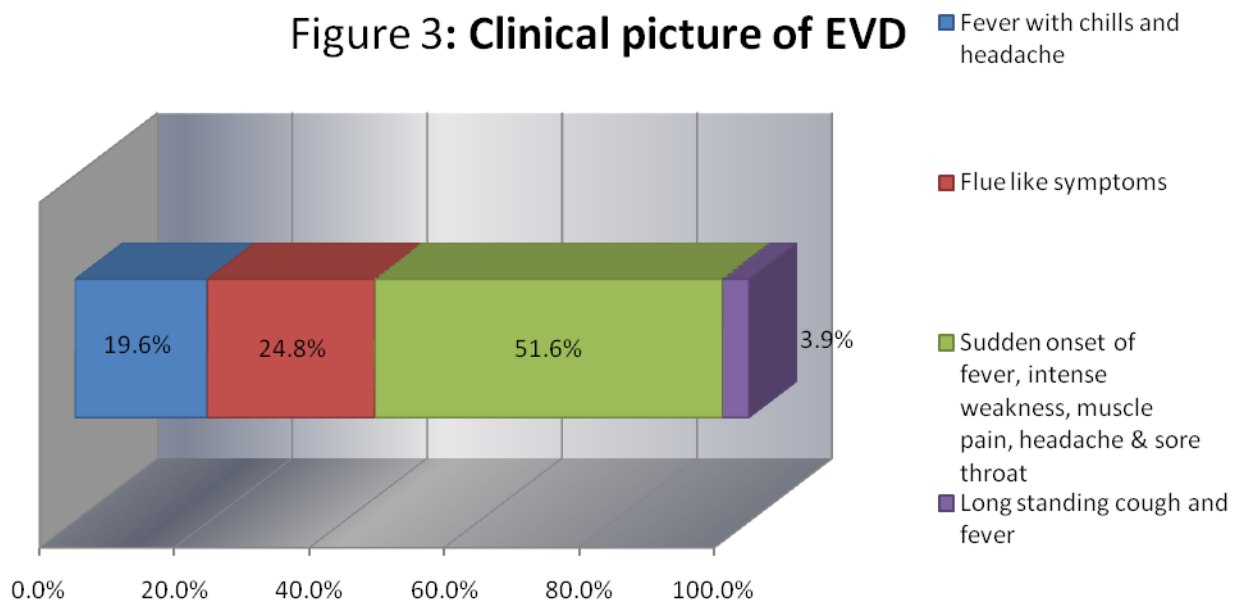


Figure 3: Clinical picture of EVD



## DISCUSSION

There is risk of international spread of Ebola virus in unaffected countries through international travelling from affected countries<sup>7</sup>. This present study results showed a good knowledge of Ebola Virus Disease among 4<sup>th</sup> year medical students in Pakistan.

The results of present study revealed that 88(57.5%) respondents were able to identify that hand washing with soap and water is basic step for prevention of Ebola virus disease which agrees with the results of hospital based descriptive cross sectional study which evaluated the awareness, knowledge and misconception about Ebola Virus Disease in a family practice setting in Nigeria, West Africa 2015<sup>8</sup>.

In this study 119(77.8%) respondents had knowledge about wearing of personal protective equipment which is comparable with hospital based descriptive cross sectional study which evaluated the awareness, knowledge and misconception about Ebola Virus Disease in a family practice setting in Nigeria, West Africa in 2015 where only 154(38.5%) respondents had knowledge regarding this question<sup>8</sup>. This study results are also comparable with the results of a cross sectional study conducted on the basis of knowledge regarding Ebola haemorrhagic fever among private dental practitioner in Tricity India<sup>9</sup>.

The present study results revealed that 77(50%) respondents had the knowledge about transmission of Ebola virus which is comparable with the result of an observational study based on knowledge among primary care physicians and nurses conducted in Barcelona where 29(24.8%) respondents correctly answered about the transmission of Ebola virus(10). A community based study on Ebola Virus Disease also revealed a fair knowledge and awareness among people of Ogbomos Environs which agrees with the results of present study<sup>11</sup>.

The present study results are also comparable with the study results based on knowledge, attitude and practice of health care professionals in a tertiary care hospital Shimoga, Karnataka in which a good number of health care providers showed a fair knowledge about Ebola Virus Disease<sup>12</sup>.

## CONCLUSION

The present study showed that our medical students have fair knowledge about Ebola virus disease, its causative agent, mode of transmission, clinical symptoms and preventive measures. Although it is

not a disease of Asian region but chances of international spread is always there.

## RECOMMENDATIONS

Scientific and formal knowledge about Ebola Virus disease should be provided not only to all medical students but also to health care providers and primary care physicians and nurses.

**Limitation:** Due to limited time and resources, the study was conducted in only one medical college in Lahore and respondents were only 4<sup>th</sup> year medical students which were not the representatives of all the medical students in the country. So in future, further studies should be conducted on students of other medical colleges to impart the knowledge about Ebola virus disease.

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