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ASSESSMENT OF LEVEL OF AWARENESS OF CAUSES, MODE OF TRANSMISSION AND SIGNS/SYMPTOMS OF VIRAL HAEMORAHAGIC FEVERS AND APPROPRIATION TO BEHAVIOURAL CHANGE TOWARDS ITS PREVENTION AMONG STUDENTS IN PUBLIC TERTIARY INSTITUTIONS IN OSUN STATE.

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Abstract

The study examined the level of awareness of the causes, mode of transmission and signs/symptoms of Viral Haemorrhagic Fevers and Appropriation to behavioural change towards its prevention Among Students in Public tertiary Institutions in Osun State. The descriptive research design was employed. A multi stage random sampling technique was employed in the selection of Public Institutions, Faculties /Schools, departments and the respondents. Data were collected from three hundred (300) respondents through a self-designed questionnaire which was

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validated. Test-retest method of reliability was employed and a reliability co-efficient of 0.78 ∝ was obtained using Piarson product moment correlation Co-formular. Two research questions and two hypothesis were formulated for the study. Data were analyzed using frequency count and percentages while the formulated hypotheses were tested using Chi-square. Findings revealed that respondents were aware of the Causes, mode of transmission and signs/symptoms of VHFS. Their awareness was equally appropriated to positive behavioural change towards its prevention. Based on the finding, the following recommendations were made; Government and Non-governmental agencies should intensify efforts on public enlightenment campaign and Health education; Health service organizations should be well equipped to identify and treat VHFS promptly and that the use of safety equipment should be enforced for animal handlers.

INTRODUCTION

Viral Haemorrhagic Fever (VHFS) refers to a group of epidemic prone diseases that are caused by viruses which are named after each disease. These diseases are severe and deadly, inclusive are Ebola virus disease, Lassa fever, Dengue haemorrhagic fever, Marburg, Yellow fever among others (W.H.O 2022).Widallz Vega – Rodrig-uiz & Hinh Ly (2023).

The natural history according to UK Health Security Agency (2022) revealed that Ebola Virus disease (EVD) formerly known as Ebola haemorrhagic fever is a severe often fatal illness in human which first appeared in 26th August 1976 in two simultaneous outbreaks in Nzara, Sudan and in Yambuku Democratic Republic of Congo in a village situated near the Ebola River from which the disease was named.

Genus Ebola Virus is one of the three members of the filoviridae family (filovirus) along with genus Marburs Virus and genus Cuevavirus. The five (5) distinct species comprised by Genus Ebola Virus according to W.H.O (2014) Kabamiz, Aric AR & Misisha, R. (2023) include: Bundibugyo Ebola

Virus (BDBV), Zaire Ebola Birus (EBOV), Reston Ebola Virus (RESTV), Sudan Ebola Virus (SUDV) and Tai Forest Ebola Virus (TAFU). Ebola Virus has the highest cases averaging 83% since 1976 and up to 90% fatality rate was recorded in one epidemic in 2002–2003 (VHFS Treatment and Diagnostic (2014). Center Naser-Aldin L, Nazanin, M.R. Daniel, K. Nasin S. M Motazavi & Att Abdo/ghaffarii S. (2023)

Lassa fever – an acute viral illness and an old-World Arenavirus first reported in 1969. Lassa fever is endemic in parts of West Africa – guinea, Liberia, Sierra Leone and Nigeria. W.H.O (2022) expressed that Multimanate rat is the reservoir of Lassa fever. Primary transmission of infection is through direct contact with urine, dropping, and inhalation of particles containing the virus as well as person to person contact.

Marburg haemorrhagic fever caused by Marburg Virus – indigenous to Africa was first recognized in 1967 in Marburg and Frankfurt in Germany and Belgrade in the former Yugoslavia (Slenczka WG, Klenk HD 2007) Marburg infection according to VHFS and Diagnostic Center (2014) was retrospectively serologically diagnosed from patient injected having been exposed to blood organs and cell cultures from African green Monkeys imported from Uganda. Recent studies implicate the African fruit bat as the reservoir host of the Marburg Virus

Nanbo Askai, Wataabe Shinji & Halfmamn Peter (2013), Mansat R. & Loule, T. (2023) noted that the Viruses associated with most VHFS naturally reside in arthropod vectors (Ticks, Mosquito etc) and animal reservoir host rodents (multimamanate rat, Dog, Cat, Pigs and other field rodents) or Primates (Monkeys and Apes). Infection is transmitted through contact with human body fluid or infected rodents Urine, fecal matter, Saliva or other body excretions. These vectors may spread the virus to human when they care for or slaughter them. United States Centres for Disease control and prevention (2014) affirmed that anyone irrespective of age, sex, race or colour could be infected with Viral Haemorrhagic fevers and that poor

sanitation, people living in high populated areas with rodents and arthropods as well as travelers and health workers are mostly vulnerable to VHFS infection.

Viral haemorrhagic Fevers according to Klenk and Feldmann (2014), Saluzzo, J. F. & Gonzalez, J.P. (2023) is a term generally used to describe a severe multi-system syndrome in which multi organ systems in the body are affected. Spangler and Bente (2017) stated that the overall vascular system is damaged and the body's ability to regulate itself is weakened. VHFS symptoms are often accompanied by bleeding which is rarely life-threatening and some can cause relatively mild illnesses while many of these viruses are extremely deadly.

Most VHFS have incubation period, that is the time interval from infection with the virus to onset of symptoms ranging between seven (7) and twenty one (21) days. The incubation period for Ebola disease specifically is 1 to 21 days. United States Center for Disease Control and Prevention (2013), VHFS Treatment and Diagnostic Centre (2014) expressed that at the beginning, all VHFS appear with similar signs and symptoms. Further investigations, however, shows the peculiarities of each of the fevers.

Slenczka and Klenk (2007), Nigerian Centre for Disease Control and Prevention (2014), Spangler and Bente (2017), UK Health Security Agency (2022) identified the following VHFS signs and symptoms:

- Lassa Fever – Fever, Sore throat, Bloody Diarrhea, Bleeding from gums, Bleeding into skin, Eyes and Urine.
- Dengue Fever – Fever, Headache, Pain behind the Eyes, Muscle and Joint pains Nausea, Vomiting and swollen glands or rash.
- Yellow fever – fever, Jaundice, Bleeding from the nose and gums, skin or Gastro-intestinal tract.
- Ebola Virus disease – Sudden fever, Weakness, joint and Muscle pain, Headache, Sore throat, Internal and External bleeding, Vomiting,

Eyes infection, Oral infection, Diarrhea, Shock, Rash, Impaired Kidney and Liver function.

Identification of suspected VHFS cases include the following signs and symptoms:

- Severe illness with weakness and fatigue
- High grade fever (38.5°C or 101°F and above) for more than 72 hours and less than 2 weeks.
- After treatment of common causeS of fever such as malaria, typhoid fever, Dysentery and other bacterial infections for 3 days without improvement, the patient is investigated for one or more of the following: Unexpected bleeding from Mucous membranes (gum, Nose or Virginal), Skin (punctured sites), conjunctiva (Red eyes due to swollen blood vessels, Gastrointestinal system (Vomiting blood, Dark or bloody stool).
- Shock systolic blood pressure <90mm Hg and of rapid, weak pulse.
- Contacts within 3 weeks prior to onset of illness with anyone who had an unexplained illness with fever and a bleeding.

To date no licensed vaccine is available.

The accelerated fatality rate is of great concern but as deadly as VHFS were, their spread can be prevented through a multifaceted approach especially, avoidance of contact with infected animals or persons, their body fluids or articles. Nigerian Centers for Disease Control and prevention (2014), Mangat ReLoule T. (2023) stressed that infected individuals should be isolated. Ebola Virus fact sheet update (2014) affirmed that raising awareness of the risk factors for infection and protective measures individual can take are the major steps to reduce human infection and death United States Centers for Disease Control and Prevention (2014) Yussuf & Aliyu (2014) Spangler and Bente (2017), WHO (2022), Sant Karnarn, Ye

Huang, Nam Nguyen, Steven Yeh (2023) identified the following preventive measures: Reducing the risk of wildlife to human transmission from contact with infected bats or Monkeys, Apes by wearing gloves. Avoid the consumption of their raw meat. People died of VHFS should be promptly and safely buried. The spread of rodents, monkeys, Apes, Bats, Ticks and Bugs should be controlled especially through proper sanitation. Highly essential is proper use, disinfection and disposal of instrument used in treating patient with VHFS. Proper and regular hand washing should be observed after visiting the hospital.

Statement of Problem

Humans are infected by VHFS through exposure to or contact with urine, fecal matter, saliva and other body excretions from infected rodents, Rats, Dog, Cat, Pig, Monkey and Apes either when these are being cared for or slaughtered. As deadly as these fevers wee, their spread can be prevented through a multifaceted approach especially, good sanitation, avoidance of contact with infected person or Vectors, their body fluid or contaminated articles. The main focus of this study, therefore, is to find out the level of awareness of causes, mode of transmission and Signs/symptoms of VHFS and Appropriation to behavioral change towards its prevention among students in Tertiary Institutions in Osun State.

Research Questions

Two research questions were raised to guide the conduct of the study:

1. Is awareness of Causes and mode of transmission of VHFS appropriated to behavioural change towards its prevention?
2. Does awareness of Signs and symptoms of VHFS by students brings about a change in behaviour towards its prevention?

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Research Hypothesis

The following research hypotheses were formulated for the study:

1. There is no significant relationship between awareness of causes, mode of transmission of VHFS and behavioural change towards its prevention among students in public tertiary institutions in Osun State
2. There is no significant relationship between students' awareness of Signs/symptoms of VHFs and behavioural change towards its prevention.

Methodology

The descriptive research design was employed to find out the level of awareness of causes, mode of transmission and signs/symptoms of Viral Haemorrhagic Fevers and appropriation to behavioural change towards its prevention among students in Tertiary Institutions in Osun State, Nigeria. A multi stage random sampling technique was employed. Simple random sampling technique was used in the selection of three (3) public tertiary institutions, five (5) Faculties or Schools in each of them making a sum of 15 Faculties. Two (2) departments were selected from each Faculty making a sum of thirty (30) while systematic random sampling technique in which students departmental list was used in the selection of ten (10) respondents each. Through this process a total number of three hundred (300) respondents were used for the study.

A self-designed questionnaire was used in collecting data from the respondents. Test-retest method of reliability was used. The instrument was validated and reliability co-efficient of 0.78 was obtained using Piarson Product Moment Correlation Coefficient formular. Frequency Counts and percentages were used in analyzing the data while Chi-square statistical analysis was used in testing the formulated hypotheses.

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Results

Table 1: Respondents' Responses on awareness of causes and mode of transmission of VHFS.

S/N	ITEMS	AGREED	%	DISAGREED	%
1.	Viral Haemorrhagic Fever are caused by Rodents, Cats, Dogs or Pigs	250	83.3	50	16.7
2.	Primates such as forest antelope, Monkey and Apes could habour Viruses that cause VHFS	210	70	90	30
3.	Ticks, Bugs and mosquitoes can not cause VHFS	40	13.3	260	86.7
4.	contact with objects used to care for or slaughter of Pigs, Rats or bat cannot transmit Viruses causing VHFS	108	36	192	64
5.	Contact with Urine, tissue, saliva of rodents or inhalation of air contaminated with tiny particles of infected animal excretion may not necessarily transmit VHFS	50	16.17	250	83.3
6.	Awareness of Causes and mode of transmission of VHFS make me to wear gloves and other protective equipment to avoid contact	260	86.7	70	13.5

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	with infected animals or persons, their body fluid or articles.				
7.	Awareness of the mode of transmission of VHFS necessitates that people who died of VHFS are promptly and safely buried as well as observance of good sanitation to eliminate ticks, bugs and mosquitoes.	240	80	60	20

Table 1 above showed that majority (83.3%) of the respondents agreed that Rodents, Cats, Dogs and Pigs can cause VHFS while 70% equally agreed that Primates such as Forest antelope, Monkey and Apes could habour viruses that cause VHFS. Majority (86.7%) of the respondents disagreed with the statement that Ticks, Bugs and mosquitoes cannot cause VHFS while 64% equally disagreed that contact with objects used to care for or slaughter of Pigs, rats and bats cannot transmit viruses causing VHFS. In the same vein 83.3% of the respondents disagreed with the statement that contact with urine, tissue, Saliva of rodents or inhalation or air contaminated by animal excretion may not necessarily transmit viruses that can cause VHFS.

Majority of the respondents agree that awareness of Causes and mode of transmission of VHFS made them wear gloves and other protective equipment to avoid contact with infected animals or persons, their body fluid or articles while 80% equally agreed that people who died of VHFS should be promptly and safely buried as well as observance of good sanitation to eliminate ticks, bugs and mosquitoes.

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Table 2: Respondents' Responses on Awareness of Signs and Symptoms of VHFS

S/N	ITEMS	AGREED	%	DISAGREED	%
8.	Fatigue, dizziness and Muscle aches could be symptoms of VHFS	260	86.7	40	13.5
9.	Bleeding under the skin, mouth, eyes or ears may not be signs of VHFS	30	10	270	90
10.	Sore throat, vomiting and Jaundice could be signs of VHFS	240	80	60	20
11	Headache, body weakness and shock may not be symptoms of VHFS	90	30	210	70
12.	Swollen glands body rash and Diarrhea could be signs of VHFS	270	90	30	10
13.	Awareness of signs and symptoms of VHFS does not prevent me from eating bush eat, Pigs and Bats	60	20	240	80
14.	I have formed the habit of regular and proper washing of hands, the use of disinfectants and taking other preventive measures.	280	93.3	20	6.7

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The above table showed that majority (86.7%) of the respondents agreed that fatigue, dizziness and muscle aches are symptoms of VHFS while 90% disagreed with the statement that bleeding under the skin, mouth, eyes or ears may not be signs of VHFS. Majority (80%) of the respondents agreed that sore throat, vomiting and jaundice could be signs of VHFS. Seventy percent (70%) disagreed with the notion that headache, body weakness and shock may not be symptoms of VHFS. Swollen glands, skin rash and diarrhea attracted 90% positive responses. Majority (80%) of the respondents disagreed that awareness of signs and symptoms did not affect their eating of bush meat, Pigs and Bats while 93.3% agreed that they have formed the habit of regular and proper washing of hands, use of disinfectants as well as observing other VHFS preventive measures.

Hypotheses Testing

Hypothesis 1: There is no significant relationship between awareness of causes, mode of transmission of VHFS and appropriation to behavioural change towards its prevention among students in public tertiary institutions in Osun State.

Table 3: X^2 computation of relationship between awareness of causes, mode of transmission of VHFS and appropriation to behavioural change towards its prevention.

Calculated Value	Df	Critical Value	Decision
754.52	6	12.6	Rejected

P=< 0.05 Alpha Level of significance

The above table shows 754.52 as the calculated value while 12.6 was obtained as the critical Value under 6 as the degree of freedom at 0.05 Alpha level of significance. The calculated Value was, however, higher that the

critical Value. This implies that a significant relationship exists between awareness of the causes, mode of transmission of VHFS and its prevention. Hypothesis 2: There is no significant relationship between awareness of signs and symptoms of VHFS and behavioural change towards its preventive among students in Public tertiary Institutions in Osun State.

Table 4: X^2 computation of the relationship between students' awareness of Signs/ Symptoms of VHFS and appropriation to behavioural change towards its prevention.

Calculated Value	Df	Critical Value	Decision
987.26	6	12.59	Rejected

P=< 0.05 Alpha Level of significance

Table 4 above showed the calculated Value of 987.26 and the critical value of 12.59 under 6 as the degree of freedom at 0.05 Alpha Level of significance. The calculated Value was higher than the critical Value which implies that a significant relationship exists between awareness of signs and symptoms of VHFS and its prevention among students in Public tertiary Institutions in Osun State.

Discussion of Findings.

This study revealed that majority (83.3%) of the respondents agreed that Viral Haemorrhagic Fevers are caused by Rodents, Cats, Dogs and Pigs while 70% equally agreed that Primates such as forest monkeys and Apes could habour Viruses that cause VHFS. Higher percentage of 86.7, however, disagreed with the statement that Tick, bugs and mosquitoes cannot cause VHFS. In the same vein 64% equally disagreed with the statement that contact with objects used to care for or slaughter of Pigs, Bats or Dogs can not transmit viruses causing VHFS.

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In the same vein 83.3% of the respondents disagreed with the statement that contact with Urine, tissue, saliva of rodents or inhalation of air contaminated with tiny particles of infected animal excretion may not necessarily transmit VHFS. Majority (86.7%) of the respondents agreed that awareness of causes and mode of transmission of VHFS made them to wear gloves and other preventive equipment to avoid contact with infected animals or persons, their body fluid or articles while 80% equally agreed that awareness of mode of transmission of VHFS necessitates that people who died of VHFS are promptly and safely buried as well as observance of good sanitation to eliminate ticks, bugs and mosquitoes. These responses are in consonance with the submissions made by Nanbo et al (2013), Klenk and Feldmann (2014), Spengler and Bente (2017), UK Health Security Agency (2022), W.H.O (2022), Saluzzo et al (2023), Mangat et al (2023) that VHFS are caused by Rodents, Cats, Pigs, Dogs and Primates such as forest monkey and Apes. Contact with objects used to care for or slaughter of these animals can transmit the VHFS Virus as well as ticks, bugs and mosquitoes. They equally affirms that contact with Urine, tissue, Saliva of rodents or inhalation of air contaminated by tiny particles of infected animal excretions could transmit the Virus.

Majority (86.7%) of the respondents agreed that fatigue, dizziness and muscle aches could be symptoms of VHFS while 90% disagreed with the statement that bleeding under the skin, mouth, eyes or ears may not be signs of VHFS. Majority (80%) of the respondents agreed that sore throat, vomiting and jaundice could be signs of VHFS while 70% disagreed with the statement that headache, body weakness and shock may not be symptoms of VHFS. Majority (90%) agreed that swollen glands, body rash and diarrhea could be signs of VHFS. These findings are in agreement with the signs and symptoms identified by Slenczka and Klenk (2007), Ebola Virus Disease fact sheet (2014), United State centers for Disease control and prevention (2014)

VHFS Treatment or Diagnostic Center (2014), WHO (2022) and Kabami et al (2023), Sant et al (2023).

Majority (80%) of the respondents disagreed with the statement that awareness of the signs and symptoms did not prevent them from eating bush meat, Pigs and bats while 93.3% agreed that they have formed the habit of regular and proper washing of hands, use of disinfectants and observing other VHFS preventive measures.

These findings are in line with VHFS preventive measures identified by the United State Center for Disease Control and prevention (2014), Ebola Virus fact sheet (2014), Nigeria Center for Disease Control and prevention (2014), Yussuf and Aliyu (2014), Splenglar and Bente (2017) and WHO (2022), Widallz et al (2023), Naser et al (2023)

The two formulated hypothesis for the study were rejected. These implies that significant relationship exists between awareness of Causes,mode of transmission of VHFS and behavioural change towards its prevention. Awareness of the signs/symptoms of VHFS was equally appropriated to behavioural change towards the prevention of VHFS among students in Public tertiary Institutions in Osun State.

Conclusion

Findings from the study, revealed that majority of the respondents were aware of the Causes and mode of transmission of VHFS. They were equally aware of the signs and symptoms of VHFS. Students in Public tertiary Institutions in Osun State equally appropriated their awareness to positive behavioural change towards the prevention of VHFS.

Recommendations

1. Government and Non-governmental agencies should intensify efforts on health education, Campaign, Workshops and Seminal for

more Public enlightenment and that any identified case should be promptly reported to the nearest hospitals.

2. Health Service Organization at all levels should be properly equipped to identify and treat VHFS promptly.
3. Environmental Sanitation should be enforced at the local and State levels to eliminate disease Vectors.
4. The use of Safety equipment should be enforced for people handling various animals.
5. Data on the prevalence of VHFS should be properly kept by the local, State and Federal government.

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