

Caring at the risk of dying? A knowledge, attitude and practice study of Nigerian physiotherapists on Ebola Virus Disease prevention and care

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Abstract

Background: The fatality of the Ebola Virus Disease (EVD) epidemics has serious implications on willingness to provide care for the infected persons, persons under investigation (PUI) or survivors. This study assessed knowledge, attitude and practice of Nigerian physiotherapists on EVD prevention and care.

Methods: Seventy-one consenting physiotherapists attending the 54th Annual Scientific Conferences of the Nigeria Society of Physiotherapy participated in this cross-sectional study yielding a response rate of 71.0%. A self-administered questionnaire adapted from previous studies and validated by expert review was used to assess knowledge, attitude and practice relating to EVD prevention and care. Data was analyzed using descriptive and inferential statistics at $p < 0.05$ alpha level.

Results: About half of the respondents (50.7%) had good knowledge about EVD which was significantly associated with educational level ($p = 0.036$) and work status/cadre ($p = 0.053$). The respondents correctly identified that EVD is caused by virus (85.9%), can be transmitted through contact with blood (95.8%) and requires a 3-week quarantined window for PUI for EVD (84.5%). 58.7% of the respondents had positive attitude towards EVD which was significantly associated with years of experience ($p = 0.019$). 53.5% of the respondents would buy from a shopkeeper who had contacted EVD but as recovered, while 56.4% would support community re-integration for EVD survivors. Common EVD-induced practices include washing of hands with soap and water (98.6%), cleaning of hands with other disinfectant (88.7%), wearing of gloves and protective clothing (90.9%), avoiding funeral or burial rituals attendance (80.3%) and avoiding to provide care for suspected, PUIs or survivors of EVD in the hospital (83.1%).

Conclusion: Nigerian physiotherapists had moderate to good knowledge about EVD but some attitude problem with support for community re-integration and providing care for suspected, PUIs or survivors of EVD. Common Ebola-induced practices among physiotherapists include hands hygiene, wearing of gloves and protective gears, suspects or PUIs and funeral or burial rituals for EVD avoidance.

Key words: Ebola Virus Disease, Knowledge, Attitude, Prevention, Physiotherapist

Introduction

The recent Ebola Virus Disease (EVD) epidemic has been described as the most challenging outbreaks in human history with the fatality rate of up to 90% [1, 2]. The Ebola virus causes a characteristic severe hemorrhagic fever with a gamut of associated clinical symptoms including severe headache and vomiting, diarrhea, muscle weakness and pain, fatigue and abdominal pain [3] and thereby necessitating special containment measures and barrier protection especially for healthcare workers [4].

The recent and ongoing epidemic of EVD in West Africa is reported as the most extensive severely affecting Guinea, Liberia and Sierra Leone while countries like Mali, Nigeria, Senegal, Spain and the United States of America had recorded outbreaks. Epidemiological statistics by the World Health Organization (WHO) as at 29th of January, 2015 indicate a total of 22, 136 confirmed and persons under investigation (PUI) for EVD with 8 833 deaths [5]. The wide geographic spread of EVD in West Africa was reportedly fueled by weak health-care infrastructures, and community mistrust and resistance [6, 7]. Even though, community engagement is key to successfully controlling outbreaks by applying a package of interventions, namely case management, surveillance and contact tracing, a good laboratory service, safe burials and social mobilization [1], conversely, there was pervading wrong perception of the disease as a hoax that is being perpetuated by the hospitals [8]. Therefore, the high fatality rate of EVD in the region since the outbreak in 2013 was implicated on factors related to knowledge, attitude and practices of the affected communities [9].

There are reports on lack of willingness of some confirmed and PUI for EVD to seek care in health facilities [10-12]. In addition, there were evidence

on the unwillingness of health workers to provide care for confirmed or PUI for EVD owing to the fatality of the disease [12-14]. Stigmatization associated with being infected with EVD or being involved with care for persons with EVD is a potential factor in unwillingness to provide care for confirmed and PUI for EVD [15, 16]. The United Nations Human Rights (2014) posit that misinformation has resulted in the stigmatization and discrimination of sick people and health care workers in cities, and ignorance has in some affected and remote areas triggered the expansion of the disease. Therefore, the WHO strategic action plan for EVD outbreak response is to conduct rapid assessment of knowledge, attitude and practice and community awareness of EVD [9]. The aim of this study was to assess knowledge, attitude and practice of Nigerian physiotherapists relating to EVD prevention and care.

Materials and methods

Seventy-one consenting physiotherapists attending the 54th Annual Scientific Conferences of the Nigeria Society of Physiotherapy (NSP) participated in this cross-sectional study yielding a response rate of 71.0%. The NSP held at Asaba, Delta state, Nigeria between 2nd to 8th November, 2014 with the sub-theme "The Role of Physiotherapy in Palliative Care for Terminally ill Patients". Inclusion criteria for participation in the study included being a registered physiotherapist in active practice in public or private setting.

A self-administered questionnaire adapted from previous studies and validated by expert review was used to assess knowledge, attitude and practice relating to EVD prevention and care. The 43-item self-administered questionnaire instrument was adapted from a similar Sierra Leone study by Monasch [17]. Section A of the questionnaire sought information on demographics and work characteristics of the respondents while section

B assessed EVD knowledge, attitude and practice relating to EVD prevention and medical care. Ethical approval for the study was sought from the Ethics and Research Committee of the Institute of Public Health, Obafemi Awolowo University, Ile-Ife, Nigeria. All respondents gave informed consent to participate in the study following full disclosure of the purpose.

Data was summarized using descriptive statistics of mean, median, standard deviation, frequency distribution. Inferential statistics of chi-square test was used to test the associations between knowledge, attitude and practice relating to EVD prevention and care and socio-demographics and work characteristics. Data was analyzed using Statistical Package for Social Sciences (SPSS) software version 16. Alpha level was set at $p < 0.05$.

Results

Table 1 shows the socio-demographic status of the respondents. Most of the respondents were male (56.3%), 21 -30 years (36.6%) and had a first degree tertiary education (52.1%). Majority of the respondents works in teaching/specialist hospital settings (54.9%) with modal work experience between 1-5years (23.9%). Table 2 shows the assessment of respondents' knowledge on EVD. 85.9% of the respondents correctly identified virus as the cause of EVD. A majority of the respondents asserts that EVD can be transmitted through contact with blood (95.8%) or sperm of an infected person (85.9%). The respondent answered corrected to the 3weeks quarantined window for PIU for Ebola (84.5%) and also that EVD can be transmitted by contact with fluid from an infected person (90.1%).

Table 3 shows the assessment of the respondents' awareness and perception of EVD. A majority of the respondents were aware of EVD (97.2%) but only about half (52.1%) knew the Ebola hotline to call to report suspected. However, radio was

the main source of information on EVD (89.5%). Table 4 shows the assessment of respondents' attitude towards EVD. 49.3% of the respondents would be willing to accept experimental treatment for EVD even when not tried yet in human than seek treatment by traditional healer (12.7%) or spiritual healer (22.5%). Just above half (53.5%) of the respondents would buy from a shopkeeper who had contacted EVD but as recovered and declared well, while only 56.4% would welcome someone who had recovered from EVD back to the community or neighborhood.

Respondents' practices and EVD-induced activities is presented in table 5. Common practices of the respondents include washing of hands with soap and water (98.6%), cleaning of hands with other disinfectant (88.7%), wearing of gloves and protective clothing (90.9%), avoiding funeral or burial rituals attendance (80.3%) and avoiding to provide care for suspected or patient under investigation for EVD in the hospital (83.1%). Based on summation scores on responses on questionnaire items on knowledge and attitude of the respondents on EVD, 23.9% had poor knowledge, 25.4% had fair knowledge and 50.7% had good knowledge on EVD. On the other hand, 42.7% had negative attitude while 58.7% had positive attitude towards EVD (table 6). Chi-square test showed significant association between knowledge about EVD and each of educational level ($p = 0.036$) and work status/cadre ($p = 0.053$). On the other hand, Chi-square test revealed significant association between attitude towards EVD and years of experience ($p = 0.019$).

Discussion

This study assessed knowledge, attitude and practice of Nigerian physiotherapists relating to EVD prevention and care. The socio-demographic profile shows a fairly even spread of respondents across the various demographic variables.

The finding of this study showed that about half of the physiotherapist had good knowledge about EVD and it was significantly associated with educational level and work status/cadre. The finding of this study is similar to another study by the Center for Public Policy Alternative [18] on knowledge and perceptions of Nigerians concerning the EVD found that about half (53%) of the sampled population have good knowledge of the Ebola virus disease. However, this finding is at variance with the result of a Sierra Leone study where comprehensive knowledge on EVD prevention in the general public was found to be low [17]. Also, a poll found that many in U.S. lack knowledge about Ebola and its transmission [19]. It is adduced that the level of knowledge on EVD in this study compared with other studies was due to the homogenous nature of the sample comprising of health workers. The physiotherapists correctly identified the causes and the modes of transmission of EVD, in addition to knowing the 21 days quarantined window for PUI for EVD. Monasch [17] stressed that comprehensive knowledge is an important factor that may enhance the likelihood of individuals to adopt prevention and medical seeking behaviours.

From this study, there were high awareness of EVD among Nigerian physiotherapists. Radio was reported as the main source of information on EVD. The finding of this study is consistent with a previous Nigerian study among a heterogeneous sample from Lagos state [17], however, television was the dominant information source of information on EVD for respondents in that study. The finding of this study revealed higher rate of awareness on the Ebola hotline among physiotherapists (52.1%) compared with a previous study (38%) conducted in Lagos state, Nigeria [18].

About 49.3% of Nigerian physiotherapists in this study, indicates willingness to accept experimental treatment for EVD even when

not tried yet in human. Currently, there is no accredited vaccine or therapies for EVD in humans. However, frantic research are on-going on experimental drugs and vaccines for EVD. The World Health Organization [20] acknowledged the ChAd3-ZEBOV vaccine, being developed by GlaxoSmithKline, in collaboration with the United States National Institute of Allergy and Infectious Diseases, and the rVSV-ZEBOV vaccine, being developed by NewLink Genetics and Merck Vaccines USA, in collaboration with the Public Health Agency of Canada as the two vaccine that have been shown to be safe and efficacious in animals but that have not yet been evaluated for safety and efficacy in humans. National Institutes of Health [21] reported that a safe and effective vaccine that protects against Ebola infection could contribute significantly to containing the current Ebola situation in West Africa and would be a critically important tool in preventing future Ebola outbreaks. Furthermore, some of the physiotherapists held some believes that EVD can be cured by traditional and spiritual healers. Pervading believes on traditional and spiritual remedies for EVD is commonplace in West Africa especially in the worst hit countries [17, 22, 23].

Attitude is an individual's evaluative positive or negative way of responding to people, views and situations [24]. Just above half of the physiotherapists in this study would buy from a shopkeeper who had contacted EVD but as recovered and declared well, and also would welcome someone who had recovered from EVD back to the community or neighborhood. Attitude towards EVD survivors and re-integration into the community is a significant challenge because of the high fatality rate of the infection [25-28]. However, reintegration of EVD survivors into their communities as been described as an important component of a comprehensive Ebola response [29].

Common EVD-induced practices of the physiotherapists include washing of hands with soap and water, cleaning of hands with other disinfectant, wearing of gloves and protective gears, and avoiding funeral or burial rituals attendance. In addition, avoiding to provide care for suspected, PUI and survivors of EVD in the hospital was reported by most physiotherapists in this study. The recent EVD epidemics in West Africa is a significant challenge to the principles of *Primum Non-Nocere* and beneficence which are the core ethical foundations of medicine. The high risk of disease transmission in EVD is the most important reason for unwillingness to provide care for confirmed or PUI for EVD. However, the Centers for Disease Control and Prevention [13] argue that the risk of disease transmission – in and of itself – does not provide grounds for the relaxation of a provider's duty to help a patient, especially because the risk is understood and readily mitigated. Therefore, refusing to provide care in EVD may be considered a violation of the ethical principle of beneficence. Nonetheless, the applicability of ethics opinions rejecting discrimination to provide care based on fear or prejudice as established, for example in HIV/AIDS [30, 31] may be difficult to extrapolate to EVD without evidence on ability to mitigate risk and competence to provide solution. Therefore, the fatality of the EVD epidemics has seriously implications on the willingness to provide care for the infected persons which is further complicated by stigmatization associated with being infected with EVD or being involved with care for persons with EVD. In the near future, contingent upon advance in medical care, rehabilitation specialists may have a larger role especially among EVD survivors. Considering that EVD survivors presents with significant after-effects ranging from eye impairment to musculoskeletal dysfunction. Some of the reported post-survivor musculoskeletal consequences

include joint pains, back pain, muscle wasting, muscle weakness which may require rehabilitation. These deconditioning process clearly establishes a need for physiotherapy. Following the imported 2014 EVD epidemics in Nigeria, the NSP issued a positional statement explaining the role of physiotherapists in infectious disease control and guidance on how physiotherapists can protect themselves from infection while continuing to provide services to patients. The statement reads "Physiotherapy is positioned to prevent diseases, promote health and restore function in event post-injury or disease (like EVD, HIV and so on) ... In the wake of the EVD, it is pertinent to realize that physiotherapists will be involved in the care and management of patients with EVD" [32]. In order to achieve the professional and ethical stance of the NSP towards EVD outbreak, the findings from this study suggest an increase awareness aimed at changing attitude towards infected persons, PUI or survivors of EVD through continuous education courses or other means.

Conclusion

Nigerian physiotherapists had moderate to good knowledge about EVD but some attitude problem with support for community re-integration and providing care for suspected, PUIs or survivors of EVD. Common Ebola-induced practices among physiotherapists include hands hygiene, wearing of gloves and protective gears, suspects or PUIs and funeral or burial rituals for EVD avoidance.

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Table 1. Socio-demographic characteristics of respondents

Variable	Frequency	Percentage
Sex		
Male	40	56.3
Female	31	43.7
Marital Status		
Single	26	36.6
Married	45	63.4
Age		
21-30 years	26	36.6
31-40 years	24	33.8
> 40 years	21	29.5
Qualification		
B.SC/BMR/BPT	37	52.1
MSc/PhD	34	47.9
Years of		
<1 years	9	12.7
1-5 years	17	23.9
6-10 years	16	22.5
11-15 years	12	16.9
16-20 years	8	11.3
> 20 years	9	12.7
Work setting		
General Hospital	12	16.9
Teaching/Specialist Hospital	39	54.9
Federal Medical Center	16	22.5
Academia	4	5.6
Specialization		
Neurology	13	18.3
Paediatrics/Community	5	7.0
Orthopaedic/Sports	31	43.7
Cardio-pulmonary	3	4.2
General Practice	19	26.8
Work status/Cadre		
Deputy/Assistant Director	13	18.3
Chief/ Principal Physiotherapist	19	26.8
Senior Physiotherapist	12	16.9
Physiotherapist	23	32.4
Lecturer	4	5.6

Table 2. Assessment of respondents' knowledge on Ebola Virus Disease

No.	Question	Percentage of respondents who gave the correct answer
1	EVD is caused by virus	61 (85.9%)
2	EVD can be transmitted by	Bats 24 (33.8%) Chimpanzees/monkeys 12 (16.9%)
3	EVD can be contacted by eating infected-bush meat	56 (78.9%)
4	EVD can be transmitted through contact with blood of an infected person	68 (95.8%)
5	EVD can be transmitted through contact with sperm of an infected person	61 (85.9%)
6	A suspected with EVD has a higher chance surviving if he/she goes immediately to a health facility	58 (81.7%)
7	A person that has been diagnosed with EVD must be admitted in an Ebola treatment centre	61 (85.9%)
8	A person who have been in direct contact with EVD must be quarantined for 3weeks	60 (84.5%)
9	EVD cannot be contacted by mere shaking of hand	54 (76.1%)
10	EVD can be transmitted by contact with fluid from an infected person	64 (90.1%)
11	EVD can be contacted from an infected person who is asymptomatic	38 (53.5%)
12	EVD can be contacted by consumption of wild fruit eaten by bats	49 (69.0%)
13	EVD is an airborne disease	52 (73.2%)
14	EVD can be transmitted by mosquito bites from infected person	52(73.2%)

Table 3. Assessment of respondents' awareness and perception of Ebola Virus Disease

No.	Question	Yes %	No %
1.	Have you ever heard about EVD?	97.2	2.8
2.	Do you believe there was an epidemic of EVD in Nigeria?	97.2	2.8
3.	Do you believe some people survived EVD?	95.8	4.2
4.	Do you know the Ebola hotline to call to report suspected	47.9	52.1
5.	EVD case or answer questions about EVD		
6.	Source of information about EVD		
	Radio	85.9	
	Television	11.3	
	Megaphone/public address method	16.9	
7.	Respondents most reliable source of information about EVD		
	Government programmes	25.4	
	Media	26.1	
	Health professionals	22.0	

Table 4. Assessment of respondents' attitude towards Ebola Virus Disease

No.	Question	Disagree (%)	Agree (%)
1.	EVD can be treated by traditional healers	62(87.3%)	9(12.7%)
2.	EVD can be treated with the help of spiritual healer	55(77.5%)	16(22.5%)
3.	Would you be willing to accept experimental treatment for EVD even when not tried yet in human?	36(50.7%)	35(49.3%)
4.	Would you buy from a shopkeeper who had contacted EVD but as recovered and declared well?	33(46.5%)	38(53.5%)
5.	Would you welcome someone who had recovered from EVD back to the community or neighborhood?	21(29.6%)	40(56.4%)
6.	Discrimination towards EVD survivor, patient under investigation or confirmed for Ebola will decrease	29(40.8%)	42(59.2%)
7.	Would you be willing that your children take an approved vaccine that could prevent EVD?	18(25.3%)	53(74.7%)

Table 5. Assessment of respondents' practices and EVD-induced activities

No.	Question	Yes n(%)	No n(%)
1a.	Washing of hands with soap and water	70(98.6%)	1(1.4%)
1b.	Cleaning of hands with other disinfectant	63(88.7%)	8(11.3%)
1c.	Increase consumption of traditional herbs	3(4.2%)	68(95.8%)
1d.	Increase intake or usage of antibiotics	7(9.9%)	64(90.1%)
1e.	Wearing of gloves and protective clothing	64(90.9%)	7(9.9%)
2.	Bathing with salt and water can prevent EVD	11(15.5%)	60(84.5%)
3.	Avoiding contact with blood and body fluid can prevent EVD	60(84.5%)	11(15.5%)
4.	Avoiding funeral or burial rituals that requires handling the body of someone who has died of EVD can prevent EVD	57(80.3%)	14(19.7%)
5.	Reduce the chance of infection by avoiding to provide care for suspected, PUI or survivors of EVD in the hospital	59(83.1%)	12(16.9%)

Table 6. Distribution of knowledge, attitude of respondents towards EVD

	Frequency	percentage
Knowledge about EVD		
Poor	17	23.9
Average	18	25.4
Good	36	50.7
Attitude towards EVD		
Negative	30	42.3
Positive	41	58.7

Table 7: Chi-square test of association between knowledge about EVD and demographic and occupational characteristics

	Poor (=17) n (%)	Fair (n=18) n (%)	Good (n=36)n (%)	X ²	p-value
Gender					
Male	10(58.8)	7(38.9)	23(63.9)	3.105	0.212
Female	7(41.2)	11(61.1)	13(36.1)		
Marital status					
Single	10(58.8)	6(33.3)	10(27.8)	4.907	0.086
Married	7(41.2)	12(66.7)	26(72.2)		
Age					
21-30 years	9(52.9)	4(22.2)	13(36.1)	5.496	0.240
31-40 years	5(29.4)	9(50.0)	10(27.8)		
>41 years	3(17.7)	5(27.8)	13(36.1)		
Educational qualification					
B.SC/BMR/BPT	13(76.5)	10(55.6)	14(38.9)	6.650	0.036
M.SC/PhD	4(23.5)	8(44.4)	22(61.1)		
Years of experience					
<1 year	4(23.5)	2(11.1)	2(5.6)	11.310	0.334
1-5 years	7(41.2)	2(11.1)	8(22.2)		
6-10 years	2(11.8)	6(33.3)	8(22.2)		
11-15 years	1(5.9)	3(16.7)	8(22.2)		
16-20 years	1(5.9)	3(16.7)	5(13.8)		
>20 years	2(11.8)	2(11.1)	5(13.8)		
Work place/Hospital					
General HS	5(20.9)	2(11.1)	5(13.9)	9.383	0.311
Teaching/Specialist HS	7(29.2)	9(50.0)	23(63.9)		
Federal Medical Centre	4(16.7)	6(33.3)	6(16.7)		
Academia	1(4.2)	1(5.6)	2(5.6)		
Specialization					
Neurology	8(47.1)	2(11.1)	3(8.3)	13.756	0.088
Paediatrics/Community	1(5.9)	1(5.6)	3(8.3)		
Orthopaedics/ Sports	5(20.9)	9(50.0)	17(47.2)		
Cardiopulmonary	1(5.9)	1(5.6)	1(2.7)		
General practice	2(11.8)	5(27.8)	12(33.3)		
Work status					
Deputy/Assistant Director	2(11.8)	2(11.1)	9(25.0)	12.447	0.053
Chief/Principal Physiotherapist	1(5.9)	6(33.3)	12(33.3)		
Senior Physiotherapist	2(11.8)	4(22.2)	6(16.7)		
Physiotherapy	12(70.6)	6(33.3)	9(25.0)		

Table 8: Chi-square test of association between attitude towards EVD and demographic and occupational characteristics

	Negative (n=30) n (%)	Positive (n=41) n (%)	X ²	p-value
Gender				
Male	16(53.3)	24(58.5)	0.191	0.662
Female	14(46.7)	17(41.5)		
Marital status				
Single	8(26.7)	18(43.9)	2.217	0.136
Married	22 (73.3)	23(56.1)		
Age				
21-30 years	9(30.0)	17(41.5)	0.995	0.608
31-40 years	11(36.7)	13(31.7)		
>41years	10(33.3)	11(26.8)		
Educational qualification				
B.SC/BMR/BPT	16(53.3)	21(51.2)	0.031	0.860
MSc/PhD	14(46.7)	20(48.8)		
Years of experience				
<1 years	7(23.3)	2(4.9)	13.534	0.019
1-5 years	2(6.7)	15(36.6)		
6-10 years	7(23.3)	9(22.0)		
11-15 years	4(13.3)	8(19.5)		
16-20 years	5(16.7)	3(7.3)		
>20 years	5(16.7)	4(9.8)		
Work place				
State HS	3(10.0)	9(22.0)	2.589	0.459
Teaching/Specialist HS	18(60.0)	21(51.2)		
FMC	8(26.7)	8(19.5)		
Academia	1(3.3)	3(7.3)		
Specialization				
Neurology	5(16.7)	8(19.5)	0.891	0.925
Paediatrics/Community	2(6.7)	3(7.3)		
Orthopaedics/Sport	15(50.0)	16(39.0)		
Cardiopulmonary	1(3.3)	2(4.9)		
General practice	7(23.3)	12(29.3)		
Work status				
Deputy/Assistant Director	6(20.0)	7(17.1)	0.588	0.899
Chief/Principal Physiotherapy	9(30.0)	10(24.4)		
Senior Physiotherapist	5 (16.7)	7(17.1)		
PT	10(33.3)	17(41.5)		

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