The effect of Ebola Virus Disease outbreak on hand washing among secondary school students in Ondo State Nigeria, October, 2014

Olayinka Stephen Ilesanmi1,*, Faith Osaretin Alele1

1Department of Community Health, Federal Medical Centre, Owo, Ondo State, Nigeria

Corresponding author:
Olayinka Stephen Ilesanmi, Department of Community Health, Federal Medical Centre, Owo, Ondo State, Nigeria

Cite this article:
Olayinka Stephen Ilesanmi, Faith Osaretin Alele. The effect of Ebola Virus Disease outbreak on hand washing among secondary school students in Ondo State Nigeria, October, 2014. Pan Afr Med J. 2015;22(Supp 1):24

Key words: Ebola, Hand-washing, Student, Infection, Ebola Virus Disease

Abstract

Introduction: Hand washing with soap and water is one of the cheapest, most effective ways of limiting the spread of Ebola Virus Disease (EVD). Despite its importance the prevalence of hand washing was low before the EVD outbreak in Nigeria. This study aimed at determining the factors associated with improved hand washing practices following the EVD outbreak.

Methods: A descriptive cross sectional study of 440 students from a secondary school in Owo, Ondo State was done. Data was collected in October 2014 when Nigeria was yet to be declared EVD free. Systematic random sampling was used. A semi-structured, interviewer administered questionnaire was used. Data was analysed with epi info version 7, descriptive statistics were done, Chi square test was used for the assessment of significant associations between proportions. Determinants of good hand washing practices was identified using logistics regression analysis at 5 % level of significance.

Results: Of 440 respondents, mean age was 13.7±1.9 years. Females were 48.2%. Only 4.6% have never heard of Ebola Virus Disease. Level of hand washing with soap and water improved by 62.6%. Significant improvement in hand washing was in 75.8% of those who heard through social media (p<0.001), 70.5% of newspaper readers (p<0.001), 65.6% of radio listeners (p=0.001), 75% of family members (p<0.001), 76.3% of churchgoers (p<0.001), 77.6% peers (p=0.02), 72.4% TV listeners (p<0.001). Change in hand washing practices was associated with watching television (AOR: 2.2; CI 95%: 1.1-4.3) and listening to health education in church (AOR: 2.4; CI 95%: 1.2-4.7). Major reason for change in hand washing practices was because of EVD deadly nature, 170(40.5%).

Conclusion: Watching health education messages on television and listening to it in church are the determinants of change in hand washing practices. Promotion of hand washing with soap and water needs to be sustained to prevent other diseases. Training of students on prevention of EVD was conducted in selected schools.
of preventing infection [6]. Hand washing and personal hygiene has been shown to reduce the rate of transmission. This study aimed at determining the factors associated with improved hand washing practices following the EVD outbreak. The result of this study will be used to improve practices that will help in preventing the spread of future outbreak.

Methods

The study was conducted in Owo, Ondo State, Nigeria. The study population was one of the secondary schools in Owo. The school was selected by using simple random sampling method out of the secondary schools in Owo, Ondo State. All consenting selected students were studied. A descriptive cross sectional design was used.

Sampling methods

Stage 1: from the list of all public secondary schools in Owo metropolis, number was assigned to each of the schools, one was selected by simple random sampling. The school corresponding to the selected number was chosen. Stage 2: from the list of students in each class systematic random sampling was used to select participants until the required sample size was achieved.

Sample size determination

The sample size was calculated using the Leslie Kish formula for sample size determination for proportion. Minimum desired sample size calculated was 402 using the standard normal deviate of 1.96 which corresponds to 5% level of significance with a prevalence of 50% and 5% non-response rate.

Data management

A semi-structured interviewer administered questionnaire was used. Data was collected in October 2014 when Nigeria was yet to be declared Ebola Virus Disease free. Questionnaires were checked for omissions and errors after collection and correction were made where necessary. Data was analysed with epi info version 7, descriptive statistics were done, Chi square test was used for the assessment of significant associations between proportions. Determinants of good hand washing practices was identified using logistics regression analysis at 5% level of significance.

Ethical consideration

Ethical approval was obtained from the Health Research Ethics Committee of Federal Medical Centre, Owo, Ondo State. Participants were made to understand that participation is voluntary and there was no consequences for non-participation. All information obtained was kept confidential.

Results

The mean age of respondents was 13.7 years ± 1.9 standard deviation. Table 1 shows the sociodemographic characteristics of respondents. Age range from 10-19 years. Only 133 (30.23%) were 15 years and above, while females were 212 (48.18%). Other sociodemographic characteristics are shown in Table 1.

Only 20(4.6%) said they have not heard of Ebola Virus Disease. Among those who have heard of EVD, level of hand washing with soap and water improved in 62.6%. Table 2 shows the socio-demographic factors associated with regular hand washing with soap and water. Regular hand washing with soap and water was reported among 119 (56.94%) students in Junior Class and 144 (68.25%) of those in senior class (p=0.02).

Table 3 shows the source of information on Ebola Virus Disease and its association with regular hand washing with soap and water. Among those who heard about EVD through the television 205 (72.44%) had regular hand washing with soap and water while only 58(42.34%) did not hear it through television (p<0.001). Likewise 116 (76.32%) who heard in Churches had regular hand washing with soap and water while only 147 (54.85%) did among those who did not hear about it in the church (p<0.001).

Table 1: socio-demographic characteristics of secondary school students in Owo, Ondo State, 2014

| Sociodemographic Characteristics | Frequency | Percent |
|---------------------------------|-----------|---------|
| Age group in years              |           |         |
| <15                             | 172       | 59.52%  |
| 15 and above                    | 117       | 38.11%  |
| Sex                             |           |         |
| Male                            | 228       | 51.82%  |
| Female                          | 212       | 48.18%  |
| Ethnicity                       |           |         |
| Yoruba                          | 363       | 82.50%  |
| Others                          | 77        | 17.50%  |
| Religion                        |           |         |
| Christianity                    | 367       | 83.41%  |
| Islam                           | 73        | 16.59%  |
| Class                           |           |         |
| Junior                          | 220       | 50.00%  |
| Senior                          | 220       | 50.00%  |

Table 2: socio demographic factors associated with regular hand washing with soap and water, Owo, Ondo State, 2014

| Sociodemographic Characteristics | Regular hand washing with soap and water | Chi-square | p-value |
|---------------------------------|-----------------------------------------|------------|---------|
| Age group in years              | Yes                                      |            |         |
| <15                             | 172                                      | 117        | 3.81    | 0.05    |
| 15 and above                    | 117                                      | 117        | 0.87    | 0.49    |
| Sex                             | Male                                     | 259        | 212     | 3.81    | 0.05    |
| Female                          | 212                                      | 174        | 15.69   | <0.001  |
| Ethnicity                       | Yoruba                                   | 363        | 220     | 4.71    | 0.03    |
| Others                          | 77                                       | 47         | 1.67    | 0.43    |
| Religion                        | Christianity                             | 367        | 220     | 2.53    | 0.11    |
| Islam                           | 73                                       | 30         | 3.06    | 0.08    |
| Class                           | Junior                                   | 116        | 73      | 7.09    | 0.008   |
|                                | Senior                                   | 244        | 144     | 7.09    | 0.008   |

Table 3: source of information on Ebola Virus Disease and its association with regular hand washing with soap and water, Owo, Ondo State, 2014

| Source of information on Ebola | Regular hand washing with soap and water | Chi-square | p-value |
|-------------------------------|-----------------------------------------|------------|---------|
| Social media                  | Yes                                      | 125        | 40.24%  | 0.04    | <0.001  |
|                              | No                                       | 139        | 117     | 0.19    | 0.66    |
| Newspaper                     | Yes                                      | 172        | 7.34%   | 15.69   | <0.001  |
|                              | No                                       | 89         | 84      | 0.03    |         |
| Radio                         | Yes                                      | 255        | 38      | 7.09    | 0.008   |
|                              | No                                       | 38         | 30.65%  |         |         |
| Family Members                | Yes                                      | 107        | 36      | 14.26   | <0.001  |
|                              | No                                       | 159        | 124     |         |         |
| Flyers                        | Yes                                      | 14         | 9.00%   | 0.39    | 0.54    |
|                              | No                                       | 249        | 151     |         |         |
| Church                        | Yes                                      | 116        | 36      | 19.09   | <0.001  |
|                              | No                                       | 147        | 121     |         |         |
| Peers                         | Yes                                      | 49         | 15.34%  | 6.44    | 0.01    |
|                              | No                                       | 219        | 144     |         |         |
| Television                    | Yes                                      | 205        | 76      | 38.74   | <0.001  |
|                              | No                                       | 58         | 27      |         |         |

Table 3: source of information on Ebola Virus Disease and its association with regular hand washing with soap and water, Owo, Ondo State, 2014

| Source of information on Ebola | Regular hand washing with soap and water | Chi-square | p-value |
|-------------------------------|-----------------------------------------|------------|---------|
| Social media                  | Yes                                      | 125        | 40.24%  | 0.04    | <0.001  |
|                              | No                                       | 139        | 117     | 0.19    | 0.66    |
| Newspaper                     | Yes                                      | 172        | 7.34%   | 15.69   | <0.001  |
|                              | No                                       | 89         | 84      | 0.03    |         |
| Radio                         | Yes                                      | 255        | 38      | 7.09    | 0.008   |
|                              | No                                       | 38         | 30.65%  |         |         |
| Family Members                | Yes                                      | 107        | 36      | 14.26   | <0.001  |
|                              | No                                       | 159        | 124     |         |         |
| Flyers                        | Yes                                      | 14         | 9.00%   | 0.39    | 0.54    |
|                              | No                                       | 249        | 151     |         |         |
| Church                        | Yes                                      | 116        | 36      | 19.09   | <0.001  |
|                              | No                                       | 147        | 121     |         |         |
| Peers                         | Yes                                      | 49         | 15.34%  | 6.44    | 0.01    |
|                              | No                                       | 219        | 144     |         |         |
| Television                    | Yes                                      | 205        | 76      | 38.74   | <0.001  |
|                              | No                                       | 58         | 27      |         |         |
Table 4: adjusted Odds Ratio of predictors of change in hand washing among secondary school students in Ondo State, 2014

| Source of Information | Adjusted Odds Ratio | 95% CI | P-value |
|-----------------------|---------------------|--------|---------|
| Television            | 2.2                 | 1.1    | 4.3     | 0.02    |
| No                    | Ref                 |        |         |         |
| Church                | 2.4                 | 1.2    | 4.7     | 0.01    |
| No                    | Ref                 |        |         |         |

Table 4 shows the adjusted odds ratio of predictors of change in hand washing among secondary school students in Ondo State. After adjusting for age and class those who heard about EVD through the television were 2.2 times likely to have regular hand washing with soap and water (p=0.02). Respondents who heard about EVD in Church were 2.4 times likely to have regular hand washing with soap and water (p=0.01).

Figure 1 shows the reasons for change in hand washing practices. The main reason reported for change in hand washing practices among 170 (40.5%) was because EVD causes death. Other reasons are shown in Figure 1.

The main reason for change in hand washing practices was because EVD causes death. When some changes in behaviour are done out of fear, such behavioural change may not be sustained. It is therefore likely that the positive hygiene practices upheld during the outbreak of EVD in Nigeria are likely to be abandoned.

Conclusions

The health education interventions during the outbreak of EVD in Nigeria led to increase in the proportion of people practising hand washing with soap and water. Watching health education messages on television and listening to it in church are the determinants of change in hand washing practices. Promotion of hand washing with soap and water needs to be sustained to prevent other diseases. Training of students on prevention of EVD was conducted in selected schools.

Competing interests

The authors declare no competing interests.

Authors’ contributions

The conceptualization, study design, data analysis and writing of the manuscript were done by both authors. The authors read and agree with the final version of this manuscript.

References

1. EBOLA VIRUS DISEASE NIGERIA Daily Situation Report (SitRep No: 16) Date: 15th August 2014. Available from: http://www.humanitarianresponse.info/operations/nigeria/document/ebola-virus-disease-nigeria-daily-situation-report-sitrep-no-16-date.
2. CDC. 2014 Ebola outbreak in West Africa. Available from: http://...
3. World Population Review. Available from: http://worldpopulationreview.com/world-cities/lagos-population.

4. Masumeh Saeidi, Habibolah Taghizadeh Moghadam, Mohammad Ali Kiani, Mohammadreza Noras, Majid Rahban, Bibi Leila Hoseini. A Short Overview of Ebola Outbreak Article. October 2014; 2(1).

5. Umeora O, Emma-Echiegu N, Umeora M, NA. Ebola viral disease in Nigeria: The panic and cultural threat. Afr J Med Health Sci. 2014;13(1):1-5.

6. National Biosurveillance Integration Center. Ebola virus in West Africa. Available from: https://info.publicintelligence.net/DHS-NBIC-Ebola-2.pdf.

7. WHO. Situation Assessment: Nigeria is now free of Ebola virus transmission. Available from: http://www.who.int/mediacentre/news/ebola/20-october-2014/en/.

8. Shuaib F, Gunnala R, Musa E, Mahoney F, OO, Nguku P. Ebola virus disease outbreak - Nigeria, July-September 2014. MMWR Morb Mortal Wkly Rep. 2014;63(39):867-872.

9. Onyango-Ouma W, Aagaard-Hansen J, Jensen B. The potential of schoolchildren as health change agents in rural western Kenya. Social science & medicine (1982). 2005. 61(8):1711-1722.

10. Parke-Ratanshi R, Elbireer A, Mbambu B, Mayanja F, Coutinho A, Merry C. Ebola outbreak response; experience and development of screening tools for viral haemorrhagic fever (VHF) in a HIV Center of Excellence Near to VHF Epicentres. PLoS ONE. 2014;9(7):e100333.

11. Chittleborough CR, Nicholson AL, Basker E, Bell S, Campbell R. Factors influencing hand washing behaviour in primary schools: process evaluation within a randomized controlled trial. Health Education Research. 2012 Dec;27(6):1055-68.

12. Goldmann D. Transmission of viral respiratory infections in the home. Pediatr Infect Dis J. 2000 Oct;19(10 Suppl):S97-102.

13. FG Begins Hand Washing Campaign. Available from: http://silverbirdtv.com/news/6630-fg-begins-hand-washing-campaign.

14. UNICEF. Case study: Public-private partnership to promote handwashing in Ghana. Available from: http://www.unicef.org/wcaro/english/overview_4618.html. Accessed 17 March 2015.