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Original Research

Assessment of knowledge, attitudes and perceptions regarding Ebola disease in healthcare workers from a tertiary care hospital in Romania

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ABSTRACT

Objectives: The National Institute for Infectious Diseases 'Prof. Dr. Matei Balş' was the designated centre for managing Ebola alerts in Romania during the 2014 African outbreak. We surveyed Ebola knowledge, attitudes and perceptions (KAP) among the institute's healthcare workers.

Study design: This was a cross-sectional survey.

Methods: The study consisted of a self-administered paper-based anonymous questionnaire that included 24 closed-item questions and two scales of personal concern.

Results: Respondents were generally well informed; compared to nurses, doctors recorded a 1.9-fold higher rate of correct responses regarding Ebola transmission ($P < 0.001$), but both nurses and doctors correctly identified Ebola's aetiological agent. Nurses perceived higher personal ($P = 0.008$) and family ($P < 0.001$) risk than doctors. Respondents reporting high perceived risks were more likely to be less informed about Ebola ($P = 0.019$) and its prevention options ($P = 0.033$). Males were 6.7-fold more likely to volunteer than females ($P = 0.001$) and so were graduates of higher rather than lower education (1.5-fold more likely, $P = 0.017$) and doctors than nurses (1.7-fold more likely, $P = 0.018$). The institute ranked first among sources of information on Ebola; respondents who had received Ebola training in the institute 2 years previously were 1.2–1.3 times more likely to correctly identify transmission routes.

Conclusions: We have characterised KAP on Ebola disease among Romanian healthcare workers from a tertiary care hospital in Bucharest. Nurses, specialist physicians and laboratory personnel may need more frequent retraining than residents and senior physicians.

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Introduction

The Ebola outbreak that started in 2014 in West Africa is the largest to date,[1] having lasted for 2 years, from March 2014 to March 2016, and carrying a major burden on the healthcare system,[2] with a suspected case count of 28,652, a confirmed case count of 15,261, and a death toll of 11,325.[3,4]

European countries were mostly spared by this outbreak, but the increase in international travel seen during the past years has led to more efficient travel of pathogens as well.[5] Therefore, a series of four alerts (of which three were suspected cases) have also been managed in Romania; these were patients who had travelled to Nigeria (two cases) and Sierra Leone (one case), whereas the fourth alert lacked a relevant epidemiological context. In the three suspected cases, Ebola infection was ruled out, and the patients were rapidly diagnosed with malaria.

The National Institute for Infectious Diseases 'Prof. Dr. Matei Balș' in Bucharest was the designated reference centre for the management of public health alerts in Romania (avian influenza, severe acute respiratory syndrome (SARS), pandemic influenza) and Ebola alerts during the 2014 outbreak. Suspected cases were managed in negative pressure isolation units, and the institute implemented designated Ebola protocols and circuits for patients, medical personnel, healthcare materials, biologic samples and medical waste. In the institute, healthcare workers (HCWs), including but not limited to physicians, nurses and nurses' aides, receive yearly training on standard precautions, while during 2014, they were invited to participate in training on five specific Ebola-related topics, namely, correct use (donning and doffing) of personal protective equipment, protective measures, circuits for suspected Ebola cases, management of biological risk and case management. Based on the experience acquired during the outbreak, the institute has created the Romanian Centre for Applied Bio-Molecular Research in Infectious Diseases, a state-of-the-art research and treatment facility.

We performed a survey to assess the knowledge and perceptions of the institute's HCWs regarding Ebola disease, 2 years after the beginning of the largest Ebola outbreak to date.

Methods

This was a cross-sectional survey consisting of a self-administered paper-based anonymous questionnaire in Romanian that included 24 closed-item questions and two scales of personal concern and was designed to assess multiple aspects related to Ebola disease, namely: (a) respondent characteristics—eight questions; (b) knowledge regarding Ebola (aetiology, transmission, signs and symptoms, severity, treatment and vaccination options)—six closed questions; (c) local epidemiology of Ebola disease—one closed question; (d) perception of personal/family/national risk and willingness to work with patients with Ebola infection—four closed questions and two scales from 1 (lowest) to 10 (highest) evaluating the degree of personal concern; and (e) preparedness activities, specific training and sources of information on Ebola and the recent epidemic—five closed questions. The English translation of the full questionnaire is available as Supplementary material.

The surveyed population consisted of HCWs from the National Institute for Infectious Diseases 'Prof. Dr. Matei Balș'. The questionnaire was distributed to all medical staff through division chiefs, and no category of HCWs was specifically excluded from the survey.

The study protocol, informed consent form and questionnaire were approved by the Bioethics Committee of the National Institute for Infectious Diseases 'Prof. Dr. Matei Balș' (approval no. 3426 from 01 June 2016) before study initiation. The questionnaire was administered once during 1–30 June 2016 to all HCWs who gave their informed consent to participate.

The statistical analysis was performed with IBM SPSS Statistics for Windows, version 22 (IBM Corp., Armonk, NY, USA). For continuous non-normally distributed variables, we report medians and interquartile ranges (IQRs), along with the results of the Mann–Whitney U test and effect size and Spearman's rank-order correlation. For categorical variables, we report the results of the χ^2 test with its φ or Cramer's V effect and relative risk (RR) along with 95% confidence intervals (95% CIs) for risk estimates. For comparing categorical characteristics of study respondents and non-respondents, we applied the two-sided z test for two population proportions. Multiple regression analysis was performed to predict continuous outcome variables based on respondent characteristics.

Results

Respondent characteristics

The questionnaire had a moderate response rate, with 180 respondents out of a total number of 452 employees (39.8%). After excluding incomplete questionnaires, a number of 157 questionnaires were validated and included in the final analysis. The median (IQR) age of respondents was 41 (33.5–47) years, with an overall predominance of females (91.7%), reflecting to some degree of the overrepresentation of females in the healthcare sector in Romania in general and in the institute in particular (91.2%). The majority of the respondents were nurses (63.7%), and the rest were doctors (36.3%): senior specialists (17.8%), residents (12.1%) and specialists (6.4%). Table 1 includes a description of the institute's structure of medical personnel and statistical comparisons between respondents and non-respondents, highlighting that nurses were slightly underrepresented, whereas resident physicians were slightly overrepresented in our survey, but the gender distribution was similar in both groups. The respondents' distribution was balanced between adult wards (37.8%) and children's wards (35.3%), but other divisions were also represented, including intensive care (12.2%), laboratory (5.1%), immune deficiency (4.5%) and others (5.1%), which included ambulatory care (0.6%), gastroenterology and infection control (1.9% each).

Most of the respondents were married (66.9%) and had children (68.8%), whereas 22.3% were single, 8.9% divorced/separated and 9.6% were widowers. In terms of the last form