

Letter to the editors



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Knowledge, attitudes, and practices on anthrax among veterinary students in Kumasi, Ghana

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To the Editors of the Pan African Medical Journal

Anthrax is a zoonotic disease that affects livestock, wildlife, companion animals, and humans [1]. The disease poses a threat to public health worldwide, especially in rural areas of developing countries. The causal organism of anthrax is a Gram-positive, sporulating, non-motile *Bacillus anthracis* [2]. Anthrax is considered a priority zoonotic disease in Nigeria [3]. It poses important health hazards among animal herds with resultant economic and public health consequences. Infection in humans is established through contact with infected animals or their products [4]. In the year 1939, some students who sustained injuries during horse dissection exercises were infected by an organism species called *Erysipelothrix*, this was documented as the first work-related zoonoses among Veterinary students [5].

Notwithstanding, adequate knowledge and preventive practices regarding anthrax remain essential for early recognition, detection, and notification. Considering the recent outbreak of anthrax in June 2023 in Ghana, besides the previous episodes, the need to assess the knowledge, attitudes, and practices of veterinary medical students on training at the School of Veterinary Medicine (SVM), Kwame Nkrumah University of Science and Technology (KNUST), Kumasi, Ghana becomes imperative. This study was conducted at the School of Veterinary Medicine (SVM), Kwame Nkrumah University of Science and Technology (KNUST), Kumasi, Ghana with a mixture of open- and close-ended types of questionnaires. The questionnaire was designed for information gathering on the knowledge, attitudes, and practices of veterinary students regarding anthrax. The study population comprised students from all levels in the School of Veterinary Medicine. A total of 230 students participated in the study (Table 1). These comprised all study levels, from years one to six. Data were analyzed using the SPSS version. The Chi-square test statistic was used to test for

association between outcome variables (knowledge, attitudes, and practices) and socio-demographic characteristics of the respondents. The level of significance was set at $p \leq 0.05$.

Anthrax is a neglected tropical disease, and one of the priority zoonotic diseases in Ghana [6] based on its negative impacts on livestock production, as well as severe disease in humans. There is limited public awareness despite the reports of human anthrax cases with high case fatality rates (CFR) in resource-limited areas of West Africa, especially Ghana. This current study revealed that though up to 67.0% of the respondents were knowledgeable about anthrax, there were important gaps in their knowledge. Only 56.5% knew that the disease was transmissible from one animal to another. Because the respondents were students of Veterinary Medicine who should possess basic knowledge about zoonotic diseases, including anthrax, this finding is of serious concern. Similarly, only 10.9% considered anthrax as a serious disease in humans, with a little above average (53.0%) indicating transmission from animals to man. This is further exemplified by the only 47.7% of the respondents who strongly considered their job/ profession as a risk of exposure to anthrax, even though veterinarians are among the highly vulnerable group of people to anthrax transmission as part of occupational hazard. This finding is worrisome given the series of outbreaks of anthrax in Ghana. The findings are similar to the report of Rohma and Girmay [7] in a study that examined the knowledge, attitude, and practices towards anthrax among communities of Eastern Tigray, Northern Ethiopia. Regarding the knowledge of the prevention of anthrax, 70.0% of the respondents knew that anthrax could be prevented in animals through vaccination, while only 55.7% indicated avoidance of infected animals as a preventive measure against anthrax in humans. Vaccination is adjudged to be a better and more effective strategy for the prevention and control of anthrax, even among the rural community [8,9].

Notwithstanding the considerable level of knowledge demonstrated among the respondents in this study, only a much lower proportion (43.0%) had a good attitude toward anthrax. About one-third (34.3%) of the respondents strongly believe that due to the lack of compensation for affected farmers, butchers could still go ahead to slaughter and sell anthrax-infected animals for consumption. Less than half (45.7%) of the respondents always put on personal protective clothing (PPE) when handling animals, while barely half (48.3%) would not always wash their hands with soap and water. This portends a high level of risk of exposure to the infection. While up to 63.9% of the respondents demonstrated good practice about anthrax, this proportion may not be considered adequate for such a professionally exposed group.

Conclusion

Overall, the respondents were relatively knowledgeable about anthrax, but a higher proportion had of poor attitude towards the disease. Importantly, the study documented some important gaps in knowledge, attitude, and practice about anthrax. In addition, the lower proportion of the respondents showing positive attitudes is a matter of concern considering the risks associated with such an occupationally exposed group. The need for targeted educational interventions to step up the enlightenment of students towards prevention of anthrax outbreak and spread is advocated.

Competing interests

The authors declare no competing interests.

Authors' contributions

Project conceptualization by Adelekan Oluseyi Okunlade. Data analysis and result interpretation were performed by Adelekan Oluseyi Okunlade, Asare Derrick, and Hezekiah Kehinde Adesokan. Folitse Raphael, Tasiame William, Foluke

Olajumoke Jemilehin, Akinlabi Oladele Ogunleye, and Benjamin Obukowho Emikpe assisted in reviewing the manuscript. All the authors have read and agreed to the final manuscript.

Table

Table 1: socio-demographic characteristics of the respondents on the knowledge, attitude and practices related to anthrax in Ghana

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Table 1: socio-demographic characteristics of the respondents on the knowledge, attitude and practices related to anthrax in Ghana

Variable	Category	Number of respondents	Percentage
Gender	Male	144	62.6
	Female	86	37.4
DVM level	100	57	24.8
	200	50	21.7
	300	55	23.9
	400	45	19.6
	600	23	10.0
Religion	Christianity	212	92.2
	Islam	18	7.8
Total		230	100.0

DVM: doctor of veterinary medicine