AWARENESS OF COMMON ZOONOTIC DISEASES AMONG THE NEW BSC DEGREE REGISTRANTS OF THE OPEN UNIVERSITY OF SRI LANKA IN 2020

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INTRODUCTION

Zoonoses represent 60% of emerging infectious diseases worldwide and are defined as those diseases that are transmitted between people and vertebrate animals (WHO, 2006). Global attention towards zoonotic diseases has been oriented with the emergence of the COVID-19 pandemic, which causes devastating effects on public health and the economy. The Indian subcontinent has been identified as one of the four global hot spots that are at increased risk for the emergence of new infectious diseases (Allen et al., 2017). Sri Lanka is at an elevated risk of emergence or re-emergence of viral zoonoses such as bird flu, rabies and leptospirosis (Dissanaike., 2002).

A lack of awareness of zoonotic diseases and their impacts is considered to be a major impediment in the prevention and control of these diseases (Paige et al., 2015). Raising awareness on zoonotic diseases at all levels of society is important to reduce the risk of their emergence. University students account for most of the young population of a country with ample health literacy, and their level of awareness of zoonotic diseases may imply the need for health education at the university level.

The Open University of Sri Lanka (OUSL) serves a large student population that is spread throughout the country and comprises individuals who have had limited higher education opportunities at conventional universities (Jayasinghe et al., 2018). The student population of OUSL is diverse in their age, employability and educational status, and thus provide a better cohort for the evaluation of the awareness of zoonotic diseases. Hence, the present cross-sectional study was conducted to evaluate the awareness, knowledge and attitudes of and to common zoonotic diseases among the new registrants of the Bachelor of Science (BSc) degree programme at OUSL in 2020.

METHODOLOGY

A cross-sectional study design was applied to a cohort of new B.Sc. registrants (n=692) who participated in the virtual orientation programme known as Empowerment For Independent Learning (EFIL) held in December 2020 at OUSL. The set of students selected for the survey have fulfilled their university entrance qualification with at least three minimum passes in G.C.E A/L in the Science stream. The study was conducted using a validated, structured and self-administered online questionnaire that was emailed to students as a google form. The questionnaire consists of both open and closed-ended questions, and it was structured in four sections: a) demographic characteristics of the respondent (age, sex, marital status, place of residence, occupation and stream of education); b) awareness on zoonoses and transmission; c) knowledge on types of zoonoses (28 viral, bacterial and parasitic zoonoses); and d) attitudes towards the prevention and control of zoonotic diseases. The data collected was coded and entered into an excel spreadsheet, which was entered later into SPSS version 20, SPSS Inc. Chicago. The independent variables were tested for significance using the Pearson chi-square test ($\chi 2$).
The $p<0.05$ was selected as significance value.

RESULTS AND DISCUSSION

A total of 83 respondents participated in this study. The demographic characteristics of respondents are summarised in Table 1. Most of the respondents were females (81.9%) belonging to the age group of 24 years or less (80.7%). Only 06 respondents were married (7.2%) while the remainder were single (92.8%). Of the respondents, 79% were students (unemployed) while 14.5% and 3.6% were teachers and laboratory technicians, respectively. Further, 95.2% of the respondents had enrolled in the biological science stream while only 4.8% had enrolled for computer science stream. The respondents were from urban (45.8%), semi-urban (30.1%) and rural (24.1%) areas. Among the respondents, 51.8% were pet owners.

Table 1: Demographic characteristics of respondents

Demographic characteristics	N	%
Age groups		
<24 years	67	80.7
25-34 years	12	14.5
35-39 years	4	4.8
Gender		
Male	15	18.1
Female	68	81.9
Marital Status		
Single	77	92.8
Married	6	7.2
Employment		
Yes	15	18.1
No	68	81.93
Occupation		
Student	66	79.5
Teaching	12	14.5
Agricultural sector	1	1.2
IT-related	1	1.2
Medical laboratory	3	3.6
Stream of enrolment		
Biological sciences	79	95.2
Computer science	4	4.8

In our study, 83.2% of respondents knew that zoonotic diseases are transmitted to humans by animals and 79.2% of them were aware that zoonotic diseases can be transmitted to humans by direct contact with animals. Further, 86.8% and 85.6% of the respondents agreed that zoonotic diseases can be treated and prevented, respectively, while only 67.5% agreed that zoonotic diseases can be controlled. Our results indicate that most of the respondents posed a satisfactory level of awareness on zoonotic diseases.

The proportion of respondents who recognised the diseases included in the questionnaire as zoonoses was variable. The highest-ranked diseases were COVID 19 (92.8%), Swine flu (89.2%), Brucellosis (80.8%), SARS (82%) and Rabies (74.7%) (Figure 1). The least identified zoonoses were Hepatitis E (22.89%), Plague (24.1%) and Toxoplasmosis (25.1%) (Figure 1).

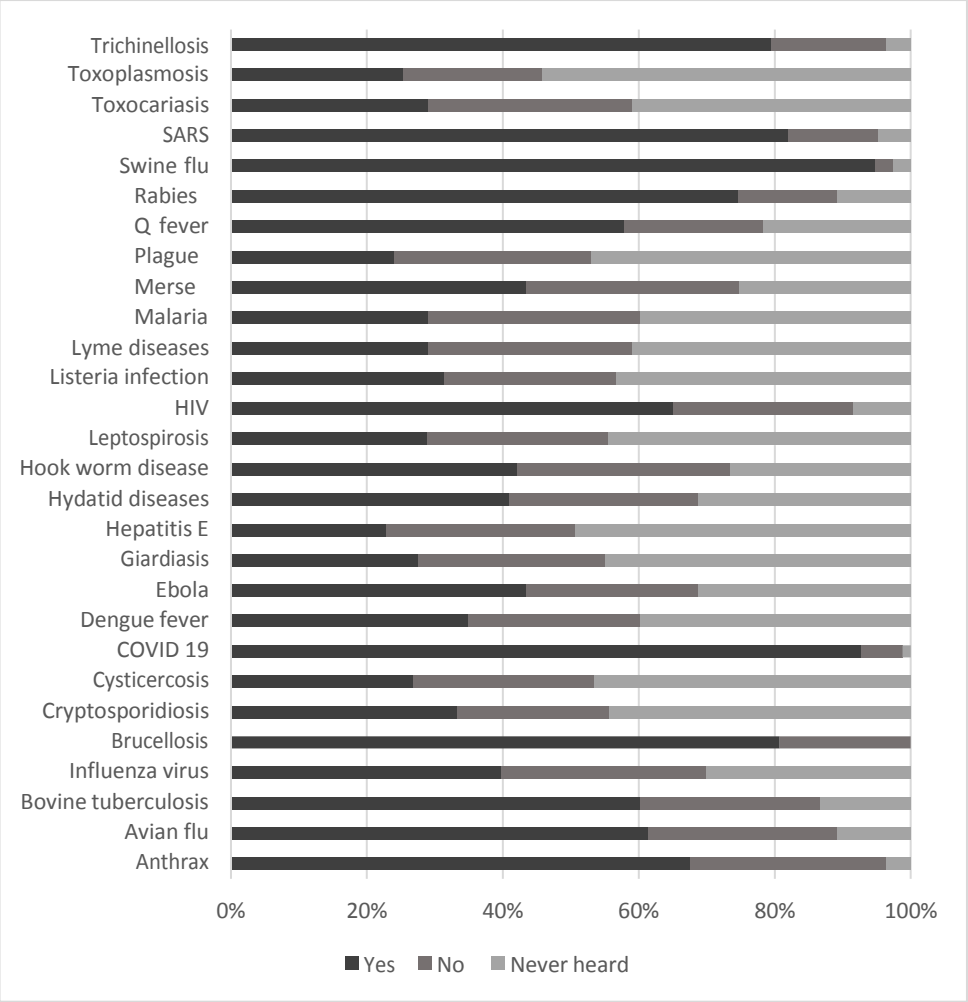

Figure 1: Proportion of respondents (%) who recognised the diseases included in the questionnaire as being zoonoses

A higher proportion of female respondents than male respondents identified bovine tuberculosis (p= 0.004) and Q fever (p= 0.028) as zoonotic diseases. Bovine tuberculosis (p=0.04) was identified as a zoonotic disease by a higher number of biological sciences students than computer science students. This could be due to the knowledge they have obtained during their secondary education.

Respondents below 24 years of age identified Swine flu (p=0.016) and SARS (p=0.000) as zoonotic diseases more than other age categories although Lyme diseases was less known (41%-never heard) in this age group. Interestingly, Brucellosis (p=0.05), cryptosporidiosis (p=0.01), cysticercosis (p=0.024), Giardiasis (p=0.012), HIV (p=0.032) and toxocariasis (p=0.05), and Rabies (p=0.004) were identified as being zoonotic diseases by more pet owners compared with non-pet owners. Pet owners appeared to be educated by veterinary practitioners or from other sources.

According to the survey, the respondents agreed that zoonotic diseases can be prevented by avoiding eating raw meat (55.4%), eating unwashed fresh fruits and vegetables (75.9%), direct contact with animals (91.1%) and rearing pets indoors (85.6 %), and ensuring the regular vaccination of pets (86.8%), proper discharge of animal faeces (51.8 %) and washing of hands thoroughly after petting the animals (54.2%). The survey results revealed that the overall attitudes and practices required to prevent zoonosis diseases are also satisfactory among the respondents. However, respondents seem to be less aware of handling pets and importance of discarding their faeces.

A significant higher percentage of female respondents agreed that zoonotic diseases can be prevented by avoiding eating raw meat ($p=0.004$) and avoiding eating unwashed fresh fruits and vegetables ($p=0.004$). The better awareness among the females about zoonotic preventive measures could be associated with their stereotypical role as food preparers of the household.

Overall, this study revealed the level of awareness about zoonotic diseases among the new BSc registrants was satisfactory. However, it is inferred that student can be more educated about the preventive and control measures of zoonotic diseases. Further, it is warranted to extend this study to a larger population of students to obtain a broad understanding of their awareness.

CONCLUSIONS/RECOMMENDATIONS

This present cross-sectional study, conducted for the first time with this population, revealed that the BSc registrants of OUSL (2020) were satisfactorily aware of zoonotic diseases. It was inferred that the awareness of some zoonoses was higher among the female respondents than male respondents. Further, female respondents were more aware of some preventive and control measures than male respondents. The respondents enrolled in the biological stream posed higher awareness of some aspects of zoonoses than respondents who were students in the computer stream. Respondents who reared pets appeared to be more educated on some zoonotic diseases than others.

The outcome of this study may have implications for initiating awareness programmes on preventive and control measures of zoonotic diseases among the BSc students at OUSL. Further, considering the changing landscape of infectious diseases, regular education about existing and emerging zoonotic diseases is warranted to update genera knowledge, practices and attitudes towards the prevention and control of zoonotic diseases.

REFERENCES

Allen, T., Murray, K.A., Zambrana-Torrelio, C., Morse, S.S., Rondinini, C., Di Marco, M., ... & Daszak, P. (2017). Global hotspots and correlates of emerging zoonotic diseases. Nature communications, 8(1), 1-10.

Dissanaike, A.S. (2002). Parasitic zoonoses in Sri Lanka: an update. Ceylon Medical Journal, 47(2), 46-47.

Jayasinghe, C.D., Jayatilleke, B.G., & Liyanage, C. (2018). Learner perceptions and engagement of pre-recorded video lectures in an online learning environment, 32nd annual conference of the Asian Association of Open Universities, Vietnam (Hanoi).

Paige, S.B., Malavé, C., Mbabazi, E., Mayer, J., & Goldberg, T.L. (2015). Uncovering zoonoses awareness in an emerging disease 'hotspot'. Social Science & Medicine, 129, 78- 86.

World Health Organization. (2006). The control of neglected zoonotic diseases: a route to poverty alleviation: report of a joint WHO (No. WHO/SDE/FOS/2006.1). World Health Organization.

ACKNOWLEDGMENTS

Ms. Nalana Edirisinghe, Senior Lecturer, Department of Zoology and Mr. D.L.N. Jayathilake, Lecturer, Department of Physics and the Coordinator of EFIL of Faculty of Natural Science are acknowledge their valuable support in conducting this study.