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Contamination of currency notes and coins: A comparative analysis of different users from the Eastern Province of Sri Lanka

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Background: Microbial contamination is inevitable in currency notes and coins. To ascertain the degree of microbial contamination during the handling of money should be regarded as a crucial factor that threatens health during the COVID-19 pandemic. It would be useful to understand the perspectives of multiple users regarding this contamination to reduce the harm caused.

Methods: In this context, the current study investigated the contamination of currency notes and coins through a questionnaire survey (n=100) with multiple users as well as a laboratory survey in the Eastern Province of Sri Lanka. From the laboratory survey, microbial isolates were obtained through a culture-based method using currency notes recovered from local vendors followed by Gram staining, microscopic assay, and Biochemical test. Specifically, the different vendors included fruit, meat, vegetable, fish, and grains sellers. New uncirculated banknotes were used as the negative control.

Results: 14.28% of Escherichia spp. were obtained. The most frequently identified bacteria were Gram-positive Bacillus – 32.14%, Gram-positive Coccus-25%, Gram-negative Bacillus-21.42% and, Gram-negative Coccus-21.42%. The questionnaire survey revealed that the perception of the type of risks were age-related. People over 58 do not know what kind of microbial contamination they are exposed to in general. For the 18 to 37-year-olds, it is more related to allergies or skin problems, poisoning, or pneumonia. The 38 to 57-year-olds think that the most common risks are respiratory problems. Regarding the question, have you ever thought about handling money carefully before the COVID-19 crisis, the CHI2 test showed significant results according to occupation and education levels. Indeed, fish sellers, fuel fillers, grocers, and three-wheel drivers showed a tendency to answer no. The same is true for people with education up to primary and secondary levels. Those who answered yes to this question are more likely to be medical workers, homemakers, and people who have gone to high school and have a bachelor's degree.

There are also significant results to the question "so far, have you taken any steps by yourself to reduce such contamination" and the level of education. There are significantly more people who went to high school and college who answered no, compared to people who went to primary and secondary schools.
Conclusion: This work calls for increased awareness and education among food vendors and other users regarding the prevalence of microbes in currency notes and coins. Such awareness would help to mitigate the possible cross-contamination between currency notes and people. Through this, consumers would know more about the potential health risks and the trajectories to minimize the contaminations and move towards better health and safety during the Pandemic

Keywords: Microbes, Awareness, Cross-contamination

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