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An assessment of knowledge on common snakes, snakebite prevention, and first aid among adults of the Ragama MOH area

*Hettiarachchi, I.U., Jayasinghe, A.G., Ilukpitiya, I.S.L., Imanji, R.P.C., Huzair, M. M.M., Jayathissa, R.N.U. and Kurukulasuriya, S.A.F.

Faculty of Medicine, University of Kelaniya, Sri Lanka

*induruh@gmail.com

Snakes, as keystone species, play a vital role in maintaining ecosystem equilibrium while significantly influencing human-nature interactions and sociocultural dynamics. Poor public knowledge of snakes, snakebites, and first-aid have contributed to an increment in disease burden and unnecessary killing of snakes. The World Health Organization identifies snakebites as a ‘neglected tropical disease’. Thus, we aimed to evaluate the knowledge on common snakes and snakebites among the adults of the Ragama MOH area. A descriptive cross-sectional study was conducted, using cluster sampling with a sample population of 637 residents (mean = 41.31 years, SD = 15.59). Demographic and study-specific data were collected through an interviewer-administered questionnaire which was developed with existent scientific literature and clinical guidelines; validated by experts on the topic and a pilot test; delivered in Sinhala and Tamil by investigators who were native speakers and trained together for consistency. Colour calibrated plates were used for species identification. Data collection was conducted in January 2023 after acquiring ethical approval. Informed consent was obtained from participants. A unified score was calculated for each participant considering the responses in four domains: the ability to identify species, their venom status, bite prevention measures, and first aid. Those who achieved an overall mark of 50 % or above were attributed as having ‘good knowledge’. Statistically significant associations were identified using the Chi-square test ($\alpha = 0.05$). Statistical analysis was conducted using SPSS software (version 22). Of the participants, 59.18 % (± 0.49 %) had a ‘good knowledge’ overall, while 98.11 % (± 0.01 %) identified *Naja naja*, 56.67 % (± 0.02 %) identified *Daboia russelii*, 44.11 % (± 0.02 %) identified *Hypnale* spp., 36.26 % (± 0.02 %) identified *Bungarus ceylonicus* and 28.41 % (± 0.02 %) identified *Bungarus caeruleus*. Of the participants, 20.9 % (± 0.7 %), 22.4 % (± 0.8 %), 96.8 % (± 0.6 %), and 67.9 % (± 0.7 %) obtained 50 % or above marks respectively on the four domains mentioned above. Statistically significant associations were recognized with sex, where males had better knowledge ($p = 1.7 \times 10^{-5}$, $\phi = 0.17$); education on snakes ($p = 4.02 \times 10^{-7}$, $\phi = 0.21$); occupation, where unskilled labourers, agricultural and fishery workers had good knowledge ($p = 2.0 \times 10^{-3}$, $V = 0.21$). Although the overall mark was satisfactory, a significant knowledge gap was observed in identifying even the highly venomous species and their venom status. This deficiency presents an opportunity for community level interventions, such as workshops, coexistence programs, and educational groups. These initiatives could help reduce the negative impacts of snakebites on public health, the economy, and biodiversity while simultaneously improving biodiversity conservation and public health outcomes.

Keywords: First aid; Ragama; snakebites; snakes; venomous