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A Cross-Sectional Study on the Awareness, Perceptions and First Aid Measures of Snakebite among Adult Population in Calicut, South India

Thomas Beeson*, H. Induja, Rajendran Greeshma and SB Bhosale

Department of Community Medicine, Malabar Medical College Hospital and Research Centre, Calicut, India

**Corresponding e-mail: beesonleo@gmail.com*

ABSTRACT

Objectives: *Snakebite is a major public health problem in India. Recently deaths due to snakebite have been reported in North Kerala due to delay in first aid measures. There are no studies in the literature that show knowledge of the first aid measures of snake bite among the general population of Kerala. This study is to determine the proportion of poor knowledge on the awareness and first aid measures of snakebite and its perceptions, in adults of 18 to 70 years age group visiting tertiary care center in Kozhikode, South India during March 2020.* ***Methods:*** *The study setting was a tertiary care center, where the majority of patients visiting, belong to rural families. The Cross-sectional study design was used. An interviewer-administered semi-structured questionnaire was used to assess the knowledge of patients visiting the tertiary care center after taking informed consent. The sample size calculated was 156. For Statistical analysis: An odds ratio used for the strength of association between the different factors and poor knowledge. 95% confidence interval for OR, p-value<0.05, and chi-square test were used for the significance of the test.* ***Results:*** *In our study, 86% of 156 study population had poor knowledge about different domains of first aid measures. Participants with education less than 10th standard were significantly associated with poor knowledge [adjusted OR 2.831 (1.44-7.676), 95% CI].* ***Conclusions:*** *Even though Kerala is very forward in terms of literacy, dissemination of correct knowledge is necessary to remove their misconception and to reduce the morbidity and mortality associated with snakebites.*

Keywords: Snakebite, First aid, Knowledge

INTRODUCTION

Every year, 50,000 Indians die in 2, 50, 000 incidents of snake bites, Even though India has no shortage of anti-snake venom in the country [1]. Improper first aid measures among the general population and delay in primary care are the factors for this largely neglected public health problem in India [2-4]. The objective of the study is to determine the proportion of poor knowledge on the awareness and first aid measures of snakebite and its perceptions, in adults of 18 to 70 years age group visiting tertiary care center in Kozhikode, South India from first March to 31st March 2020.

MATERIAL AND METHODS

The study setting is a tertiary care center and the majority of people who come here belong to rural families. The study design is a cross-sectional study and the sample size calculated was 156, where prevalence, p=39% from a previous study, d is relative precision (20% of p) [5]. From the MRD list, of 1500 patients who visit the hospital, 20 patients, adults of 18 to 70 years age group, were chosen randomly at 9 am every day for 8 days and were interviewed. Those who could not comprehend the questionnaire were excluded. The participants were interviewed using pilot-tested interviewer-administered, semi-structured questionnaires including socio-demographic characteristics of the participants and a questionnaire to assess the knowledge, concepts, and first aid measures after taking informed consent. Modified BG Prasad scale updated in 2020 was used for socio-economic status calculation [6].

The questionnaire scoring was done for questions regarding the beliefs, knowledge about symptoms, first aid, and management of snakebite. The scoring had been done for both objective and open-ended questions. For objective

questions, the score is 1 for the right answer. For open-ended questions, the maximum score is 2, that is, 1 for each right answer. The total score is 17. Based on the questions that the person must know for adequate knowledge, the cut-off score is 11. This study was approved by the Institutional Ethics Committee with IEC Min No 2020/1, dated 12-03-2020. Data entry was made in the Epidata 3.1, statistical analysis was done by the SPSS trial version 20.0. The socio-demographic characteristic and other variables of the study population have been presented using frequency and percentages for categorical variables and mean ± standard deviation for continuous variables. Bivariate analysis was done to generate an odds ratio for the strength of the association between socio-demographic factors and poor knowledge. 95% confidence interval for Odd's ratio, p-value<0.05, and chi-square test were used for the significance of the test.

RESULTS

A total of 156 people between 18 to 70 years of age with a mean age of 42 ± 14.22 visiting tertiary health care were surveyed. The majority (86%) of the study population had poor knowledge about first aid measures of snakebite with a 95% confidence interval (83.22-88.78).

Table 1 shows the socio-demography of the participants. Out of the 156 participants, the majority (66%) belongs to middle-aged adults followed by young adults. 57% of participants were females and 43% were males. The majority (37.2%) had completed high school followed by those who had completed graduation (21.2%). 79% were unemployed followed by 19% who were skilled workers. Figure 1 depicts the socioeconomic status of the participants and the majority belong to the upper-middle class (28.2%), followed by the middle class (26.9%) which is according to modified BG Prasad's classification 2020.

Table 1 Socio-demography of the participants (N=156)

No	Variables	Category	Frequency (%)
1	Age	Young adult 18-35	54 (34.6%)
		Middle-aged 36-55	68 (43.5%)
		Elderly >55	34 (21.8%)
2	Sex	Male	67 (43%)
		Female	89 (57%)
3	Education	Primary(1-4)	5 (3.2%)
		Middle(5-7)	12 (7.7%)
		High(8-10)	58 (37.2%)
		Higher(11-12)	30 (19.2%)
		Graduate(13-15)	33 (21.2%)
		Postgraduate(>15)	18 (11.5%)
4	Occupation	Profession	11 (7.1%)
		Semi profession	13 (8.3%)
		Clerical/shop	10 (6.4%)
		Skilled	18 (11.5%)
		Semi-skilled	6 (3.8%)
		Unskilled	19 (12.2%)
		Unemployed	79 (50.6%)

5	SES(Modified BG Prasad scale 2020)	Upper class	37 (23.7%)
		Upper middle class	44 (28.2%)
		Middle class	42 (26.9%)
		Lower middle class	23 (14.8%)
		Lower class	10 (6.4%)

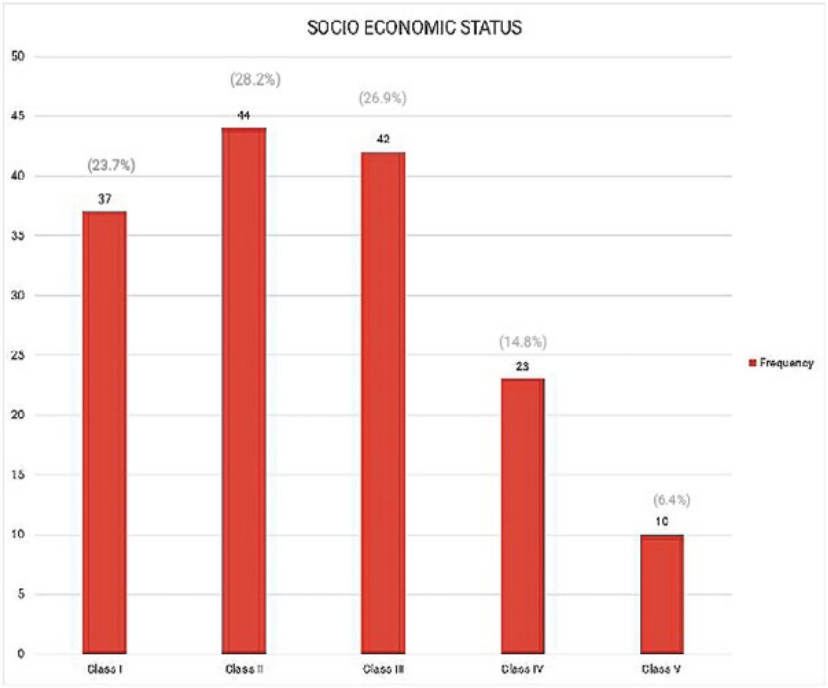

Figure 1 Socio-economic status of the participants (N=156)

Of the study population, 85.9% had poor knowledge about first aid measures of snakebite, as shown in Figure 2. Table 2 shows the bivariate analysis between poor knowledge and socio-demographic variables. From this table, it is inferred that among 134 participants, who had poor knowledge, 51.5% had an educational level below 10th class. Education level below 10th class is associated with poor knowledge. Chi-square value-4.441,p-value-0.035, adjusted Odd's ratio with 95% confidence interval-2.831 (1.05-7.676) which is statistically significant.

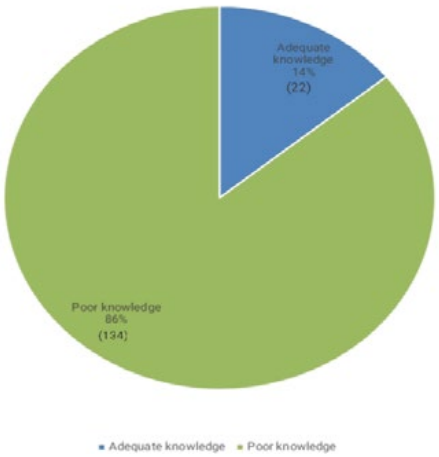

Figure 2 Assessment of knowledge (N=156)

Table 2 Bivariate Analysis between poor knowledge and socio-demographic variables

Characteristics		Poor knowledge	Adequate knowledge	Total	Chi-square/ Fischer's Exact test	p-value	Adjusted Odd's ratio	95% C.I.
Sex	Males	56 (41.79%)	11 (50%)	67 (42.9%)	0.52	0.494	0.718	0.291-1.772
	Females	78 (58.2%)	11 (50%)	89 (57.05%)				
Age	<40years	71 (53%)	12 (54.5%)	83 (53.2%)	0.018	0.892	0.9	0.380-2.322
	>40years	63 (47%)	10 (45.5%)	10 (45.5%)				
Socioeconomic status	Upper class (Class I,II.III)	103 (76.9%)	20 (90.9%)	123 (78.8%)	Exact 0.108	0.135	3	0.666-13.597
	Lower class (Class IV, V)	31 (23.1%)	2 (9.1%)	33 (21.2%)				
Education*	<10 class	69 (51.5%)	6 (27.3%)	75 (48.1%)	4.46*	0.03*	2.8*	1.05-7.676
	>10 class	65 (48.5%)	16 (72.7%)	81 (51.9%)				
*Statistically significant								

DISCUSSION

Snakebite is a common life-threatening emergency in this study area. This study was to assess the awareness levels regarding first aid management after a snake bite. It demonstrated that 21.8% correctly knew that snake bites were common during the summer season, but the majority of them (48.08%) had a false belief that snake bites were more common in winter. Snakes were considered as Gods by 67.94% and there was a misconception that curses and lack of worship could lead to snake bites. According to a detailed review of snake bites in South Asia, popular traditional treatments used included chanting, making incisions on bite sites, attempting to suck venom from the bite site, and the application of herbal medicine or snake stones [7].

In this study, 83.97% of the participants had good knowledge about the symptoms of snakebite. Males and females had equal awareness about snakebite and its management, while a study conducted in Maharashtra showed that males were more aware of symptoms of snakebite [8]. The most common symptoms that the subjects pointed out during this study were fang marks, bruising, and local pain. According to a study by Silva, et al. 74% of participants preferred the application of a tourniquet as a first-aid measure following snakebite [9]. But a majority of (93.6%) this study participants prefer this as a first-aid measure, although the application of a tourniquet is not recommended by World Health Organization [10]. This negative perception must be cleared by educating them about the correct practices like reassurance, immobilization, avoiding interference with the bite wound, and transport to the hospital without delay. In a study conducted among the agriculture sector in Andhra Pradesh, 14.4% answered that if the bite site is on the limb, it should be immobilized. This was only 6.4% in this study [11]. 32.7 % of subjects said the limb should be hung down and 6.4% said that it should be lifted. Among the participants, 31.4% correctly knew about the transportation of the victim.

According to WHO guidelines, nothing should be applied to the limb or the affected part to prevent the spread of the poison [10]. The percentage of people who thought that nothing should be given to the victim to drink or eat was only 69.87%. The subjects who believed in, washing the bite site with soap and water were 69.23%, putting an incision near or on the bite site was 42.3%, sucking the bite site was 13.5%. In a study conducted among the rural population in Tirunelveli too, most of the subjects took the above-mentioned measures against snakebites [12]. A study conducted among the agricultural sector showed that only 7.8% preferred allopathic treatment [10]. But in this study, the majority (85.25%) prefers allopathic treatment. A majority of the study population (71.7%) knew about the availability of Anti Snake Venom. As this is a hospital-based study the results cannot be generalized to the community. But this study implies the knowledge of the rural population, as most of the patients hail from rural families.

There is a paucity of knowledge on different domains of snakebite; hence dissemination of correct knowledge is necessary to remove their misconceptions. The main source of false beliefs was passed on through generations, so more accurate and proper awareness needs to be generated through awareness campaigns in communities and schools. So

it is important to implement community-based awareness programs on the prevention of and treatment for snakebite. Snakebite-related morbidity and mortality are preventable. People should know that not every snakebite is 100% fatal. It is curable if the patient is given appropriate timely medical treatment. The availability of anti-snake venom and better facilities at primary health centers with rapid transportation facilities may change the morbidity associated with snakebites.

CONCLUSION

This study has found that 86% of the study population had poor knowledge about first aid measures of snakebite. Even though Kerala is very forward in terms of literacy, dissemination of correct knowledge through health promotion is necessary to remove their misconceptions and to reduce the morbidity and mortality associated with snakebites.

DECLARATIONS

Conflicts of Interest

The authors declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

REFERENCES

[1] Srivijay J. "A study to assess the effectiveness of structured teaching programs regarding the management of snakebite among rural people in the selected areas at Bangalore." 2011. http://www.rguhs.ac.in/cdc/onlinecdc/uploads/05_N100_32129.doc

[2] Kumar, A., et al. "Knowledge regarding snake bite in rural Bengal-Are they still lingering on myths and misconceptions." Vol. 2, No. 7, 2015, pp. 36-41.

[3] Pandve, Harshal Tukaram, Anuja Makan, and Tejashree Arun Kulkarni. "Assessment of awareness regarding snakebites and its related issues among rural communities." *Scifed Journal of Public Health,* Vol. 1, 2017, p. 1.

[4] Pathak, Ishan, and Chandra Metgud. "Knowledge, attitude and practice regarding snakes and snake bite among rural adult of Belagavi, Karnataka." *International Journal of Community Medicine and Public Health,* Vol. 4, No. 12, 2017, pp. 4527-31.

[5] Schioldann, Eliza, et al. "Why snakebite patients in Myanmar seek traditional healers despite availability of biomedical care at hospitals? Community perspectives on reasons." *PLoS Neglected Tropical Diseases,* Vol. 12, No. 2, 2018, p. e0006299.

[6] Mathiyalagen, Prakash, Prem Davis, and Malaimala Sarasveni. "Updated BG Prasad Socio-Economic Classification: The 2020 Update." *Indian Journal of Pediatrics,* Vol. 88, No. 1, 2020, pp. 76-77.

[7] Alirol, Emilie, et al. "Snake bite in South Asia: A review." *PLoS Neglected Tropical Diseases,* Vol. 4, No. 1, 2010, p. e603.

[8] Chincholikar, Sanjeev Vasantrao, Patniak Bandana, and Raje Swati. "Awareness of Snake bite and its first aid management in rural areas of Maharashtra." *Indian Journal of Community Health,* Vol. 26, No. 3, 2014, pp. 311-15.

[9] Silva, Anjana, et al. "Awareness and perceptions on prevention, first aid and treatment of snakebites among Sri Lankan farmers: A knowledge practice mismatch?" *Journal of Occupational Medicine and Toxicology,* Vol. 9, No. 1, 2014, pp. 1-3.

[10] World Health Organization. "Guidelines for the management of snake-bites." 2010.

[11] Guthi, Visweswara Rao, et al. "Study on awareness regarding snake bite hazards among people working in agriculture sector and health education about preventive and first aid measures." *International Journal of Community Medicine and Public Health (Gujarat),* Vol. 6, No. 6, 2019, pp. 2615-18.

[12] Krishnaleela, G., M. Selva Meena, and A. Praveena Daya. "A KAP study on snake bite among the rural population in Tirunelveli district." *International Journal of Community Medicine and Public Health,* Vol. 5, No. 5, 2018, p. 1762.