



“THE AWARENESS, PERCEPTIONS AND FIRST AID MEASURES OF SNAKEBITE AMONG ADULT POPULATION IN CALICUT, SOUTH INDIA”

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ABSTRACT

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KEY WORDS : Tele-medicine; COVID-19; Survey; Questionnaire;

INTRODUCTION:

Every year, 50,000 Indians die in 2,50,000 incidents of snake bites, despite the fact that India has no shortage of anti-snake venom in the country. ⁽¹⁾ Improper first aid measures among general population and delay in primary care are the factors for this largely neglected public health problem in India. ^{(2),(3),(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 centre in Kozhikode, South India during March 2020. **Subjects and Methods:** The study setting is a tertiary care centre 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, $p = 39\%$ ⁽⁵⁾ from a previous study, d is relative precision (20% of p). 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 9am everyday for 8 days and were interviewed. Those who could not comprehend the questionnaire were excluded. The participants were interviewed using interviewer-administered semi-structured questionnaires including socio-demographic characteristics of the participants and questionnaire to assess the knowledge, concepts and first aid measures after taking informed consent. Modified BG Prasad scale updated in October 2019 was used for socio-economic status calculation.

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. The socio-demographic characteristic and other variables of the study population have been presented using frequency and percentages for categorical variables and mean \pm 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. 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 2 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 2019.

Of the study population, 85.9% had poor knowledge about first aid measures of snakebite, compared to only 14.1% who had adequate knowledge as shown in figure-1. Table 2 shows the bivariate

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analysis between poor knowledge and socio-demographic variables. From this table, we infer that among 134 participants, who had poor knowledge, 51.5% had an educational level below 10th class and 48.5% had an educational level above 10th class. The majority of participants (72.7%) who had adequate knowledge had completed the 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.

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. Participants of this study included 67 males (43%) and 89 females (57%), in the age range 18 - 70 years (mean 42.25 years, SD: 14.23 years), visiting tertiary care centre. The study included people with education level of primary school(3.2%), middle school(7.7%), high school(37.2%), higher secondary(19.2%), graduate(21.2%) & postgraduate(11.5%). Only 14% of subjects had adequate knowledge about first aid and management of snake bites. This may be based on their education, socioeconomic status and age.

Our study 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 curse and lack of worship could lead to snake bites. According to a detailed review of snake bites in South Asia, popular traditional treatments include chanting, incisions (42.3%), attempts to suck venom from the bite site and the application of herbal medicine or snake stones.

In our study, 83.97% of the participants had a fair knowledge about the symptoms of snakebite; conversely, 16.03% had no knowledge about symptoms of snakebite. The most common symptoms that the subject pointed out during our study were fang marks, bruising & local pain. According to a study by Silva. An et al,^[6] 74% of participants prefer the application of a tourniquet as a first-aid measure following snake bite. However, from our findings it was evident that a very high percentage of participants prefer the application of a tourniquet as a first-aid measure following snakebite. This practice, although considered a dangerous first-aid measure has been observed among nearly 93.6 %. 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. Only 6.4 % answered that, if the bite site is on the limb, it should be immobilized. While 32.7 % said the limb should be hung down and 6.4% said that it should be lifted up. Among the participants, 31.4 % correctly knew about transportation.

According to WHO guidelines, nothing should be applied on the limb or the affected part to prevent the spread of the poison. 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%. The percentage of people who thought that nothing should be given to the victim to drink or eat was only 69.87%. The vast majority of the study participants preferred allopathic treatment and 71.7% of them 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 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 community 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 centres with rapid transportation facilities may change the morbidity associated with snakebites.

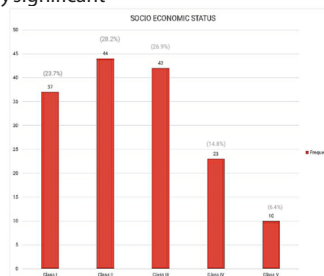
TABLE 1 SOCIODEMOGRAPHY OF THE PARTICIPANTS(N=156)

No	Variables	Category	Frequency(Percentage)
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)
5	SES(Modified BG Prasad scale October 2019)	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)

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%)	0.520	0.494	0.718	0.291-1.772
	Females	78(58.2%)	11(50.05%)	89(57.05%)				
Age	< 40 years	71(53%)	12(54.5%)	83(53.2%)	0.018	0.892	0.9	0.380-2.322
	> 40 years	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



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