

## SHORT ARTICLE

**Awareness of Snake bite and its first aid management in rural areas of Maharashtra**Sanjeev Vasantrao Chincholikar<sup>1</sup>, Patniak Bandana<sup>2</sup>, Raje Swati<sup>3</sup><sup>1</sup>Professor, <sup>2</sup>Professor & Head, <sup>3</sup>Lecturer, Department of Community Medicine, Maharashtra Institute of Medical Education and Research (MIMER Medical College), Talegaon Dashade

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**Abstract**

**Background:** Cause of 'unacceptable incidence' of snake bite fatalities is that people try out all kinds of 'bizarre remedies' initially. **Objectives:** To study the knowledge about the types of snakes and their identification and to ascertain the knowledge about first aid. **Methods:** A cross sectional study was carried out in 10 adopted villages under Rural Health Training Centre, from July 2011 to June 2012. Out of 2272 households, a proportionate sample was selected and one representative from each household was further selected at random. **Results:** The awareness about first aid measures was less in all subjects but the knowledge about symptoms of snake bite was higher in majority of subjects. It was observed that knowledge about types of snakes was significantly higher in 12-20 years of age group ( $p < 0.05$ ). Out of 49 survived cases of total 68 cases, 8 cases were given wrong first aid. Use of mantriks, sucking of blood was practiced in few cases. In most of the cases the nearest health facility is not in a reachable distance, taking more than 30 minutes to reach and no transport facility is available to reach nearest health centre. Hence, in order to prevent untimely death, there is a need to provide knowledge regarding first aid treatment of snake bite to the villagers.

**Key Words**

Snake bite; first aid; types of snakes; health care services

**Introduction**

Snake bite is a common medical emergency and an occupational hazard, more so in tropical India, where farming is a major source of employment [1]. India has remained notorious for its venomous snakes and the effect of their bites. Every year, 50,000 Indians die in 2,50,000 incidents of snake bites, despite the fact that India is not home for the largest number of venomous snakes in the world, nor is there a shortage of anti- snake venom in the country [2]. Maharashtra has reported highest incidence as 70 bites per 100000 population and mortality of 2.4 per 100,000 per year [3]. The main cause of this 'unacceptable incidence' of snake bite fatalities is that people try out all kinds of 'bizarre remedies' initially, instead of going to the nearest appropriate health facilities. The available data on the epidemiology of snake bite from the Indian Subcontinent are sparse because most of the snake bites occur in illiterate, rural people who use

witchcraft and traditional healers. Only the cases of snake bite with severe envenomation reach the health care centres [4]. This study was carried out to assess the knowledge, attitude, and practices regarding snake bite cases in rural areas of India.

**Aims & Objectives**

To study the knowledge about the types of snakes and their identification, to ascertain the knowledge about first aid and treatment options available, to assess the knowledge about the symptoms of snake bite

**Material and Methods**

A Community based cross sectional study was conducted at household level from all of the 10 adopted villages under the Rural Health Training Centre, M.I.M.E.R. Medical College. Out of 2272 households, a proportionate sample was selected and one representative from each household was further selected at random. The study period was

from July 2011 to June 2012. A Bilingual Pretested questionnaire was used for data collection. It consisted of two parts pertaining to awareness, practices, and was collected on the spot. Data regarding socio economic status was also collected after obtaining informed consent. Research was approved by the institutional ethical committee. Study variables such as age, sex, occupation, education, types of snakes, symptoms of snake bite were studied and data was analyzed to see extent of knowledge and its association with various socio economic parameters using Chi square test.

## Results

A total of 227 people, between 12-90 y of age, belonging to various occupational fields were surveyed. More than 60% people were unable to identify the type of snake. Only 35% of those who could identify the snakes had correct information. Majority (82.4%) had moderate to good knowledge about the habitat of snakes. As against this, a similar no. of people could not correctly tell the time of the day at which the snakes are found.

[Figure 1](#) shows that awareness about types of snakes was better in 12-20 years of age. It was observed that knowledge about types of snakes was significantly higher in 12-20 years of age group ( $\chi^2 = 7.03$   $p < 0.05$ ). On the other hand, knowledge about symptoms of snake bite was more common after middle age group beyond 40 years of age. Knowledge about first aid measures was found more in above 60 years of age group as compared to remaining all three age groups.

[Figure 2](#) illustrates that awareness about types of snake bites and symptoms of snake bite was better in males as compared to females. On the other hand knowledge about first aid measures was equal in both sexes.

[Figure 3](#) depicts that the awareness about first aid measures was less in all subjects. However knowledge about symptoms of snake bite was higher in farmers, students as well as house-wives. It was also observed that educated people had more knowledge about types of snakes as compared to uneducated ( $\chi^2 = 18$   $p < 0.001$ ).

Out of 68 cases of snake bite which they have seen in the village, 19 cases of snake bite survived. Out of remaining 49 cases, 8 cases were given wrong first aid and they died in house. Use of mantriks, sucking of venom from wound site was practiced in few cases. Due to unavailability of transport services 8 cases took 3-6 hours to reach the medical facility.

Out of 227 people 45 (19.8%) believed that there are no chances of survival after snake bite. Home remedies, calling mantriks, sucking venom from the bitten part and herbal treatment were considered as first aid measures by many subjects.

In most of the cases the nearest health facility is not in a reachable distance, taking more than 30 minutes to reach and no transport facility is available to reach nearest health centre.

## Discussion

Snakebite remains an underestimated cause of accidental death in modern India. South Asia is the world's most heavily affected region, due to its high population density, widespread agricultural activities, numerous venomous snake species and lack of functional snake bite control programs. An accurate measure of the global burden of snakebite envenoming remains elusive despite several attempts to estimate it and, apart from a few countries, reliable figures on incidence, morbidity, and mortality are scarce [5-7]. Recent extensive survey carried out in West Bengal also reports that Official reporting system is still having a huge deficiency in India [8].

Despite increasing knowledge of snake venoms' composition and mode of action, good understanding of clinical features of envenoming and sufficient production of antivenom by Indian manufacturers, snake bite management remains unsatisfactory in this region. Knowledge of the varied clinical manifestations of snake-bite are important for effective management.

The identification of snake species is crucial for optimal clinical management, as it allows clinicians to choose the appropriate treatment, anticipate complications, and thereby reducing mortality. Unfortunately, most of the studies report that in many cases the biting snake is not seen, and if it is, its description by the victim is often misleading [9]. Our results are however contradictory to these findings. Better knowledge of our study population might have been instrumental in reduced mortality of our study population.

A widespread belief is that snake bites inevitably result in envenoming. However, bites by non-venomous snakes are common and bites by venomous species are not always accompanied by the injection of venom (dry bites). Most experts agree that snake bite victims should be transported as quickly as possible to a medical centre where they can be clinically evaluated by qualified medical staff,

and where anti venoms are available. In fact, time of transport was shown to be a crucial determinant of snake bite mortality in eastern Nepal [10]. Studies in southern India confirmed that delayed anti venom administration was associated with an increased risk of complications [11,12]. Studies in similar settings report that survival rate was significantly higher in cases where time to reach the medical facility was less than 6 hrs [13,14]. Our findings say that 11.7 % people needed 3-6 hrs to reach the nearest health care facility.

According to a detailed review about snake bites in South Asia, popular traditional treatments include chanting, incisions, attempts to suck venom from the bite site, and the application of herbal medicine or snake stones [15]. Our findings support these observations. However, study done by Bawaskar et al [16] in similar settings show higher knowledge about first aid than our study population.

As suggested by Bijayeeni Mohapatra et al [17], community education, and availability of appropriately trained staff can reduce mortality due to snake bites.

Knowledge about snake bites was low in all three age groups including middle age group. In contrast in one of the studies 5 the knowledge about snake bites was much more than that found in our study which helped to reduce the morbidity and mortality due to snake bites in rural areas. Knowledge about first aid measures was equal in both sexes. The results shown by one of the studies [18] showed that the knowledge about first aid measures was very less in rural areas of India .In most of the cases the nearest health facility is not in a reachable distance, taking more than 30 minutes to reach and no transport facility is available to reach nearest health centre. Similar results were obtained in a study conducted by Alirol et al [15] which showed that ample time was lost due to inappropriate first aid measures. Home remedies, calling mantriks and herbal treatment was the answer for the first aid measures in many subjects. Similar results were shown in the studies conducted by Wanje Sudhir and D. P. Punde [18].

## Conclusion

People should know that poisonous snake bites are fully curable if the patient is given appropriate medical treatment without wasting time without going to 'ojha' or snake charmers, people should bring victims to PHC or hospital immediately. "The most important thing is for the people to recognize the symptoms of snake bite and take medical help as

soon as possible, Old beliefs, particularly in rural area, lead bite victims to try tantra-mantra, which may be fatal. As suggested by Bijayeeni Mohapatra et al, Community education, and availability of appropriately trained staff can reduce mortality due to snake bites. Timely access to treatment is crucial in management of snake bite cases. Education of rural communities on snake bite, avoidance of useless or dangerous first-aid measures, and the importance of rapid transport of victims to treatment centres should be widely implemented.

## Recommendation

Use of flip charts or videos related to awareness about symptoms of snake bite and first aid measures in schools and colleges will definitely help in sensitizing the people in rural area.

## Relevance of the study

The study emphasizes on the need of seeking timely and appropriate first aid in case of snake bite to reduce the mortality and morbidity in rural areas.

## Authors Contribution

CSV: designing and execution of study, data collection, result and discussion, PB: initial idea, motivation and planning and RS: data analysis, result and discussion.

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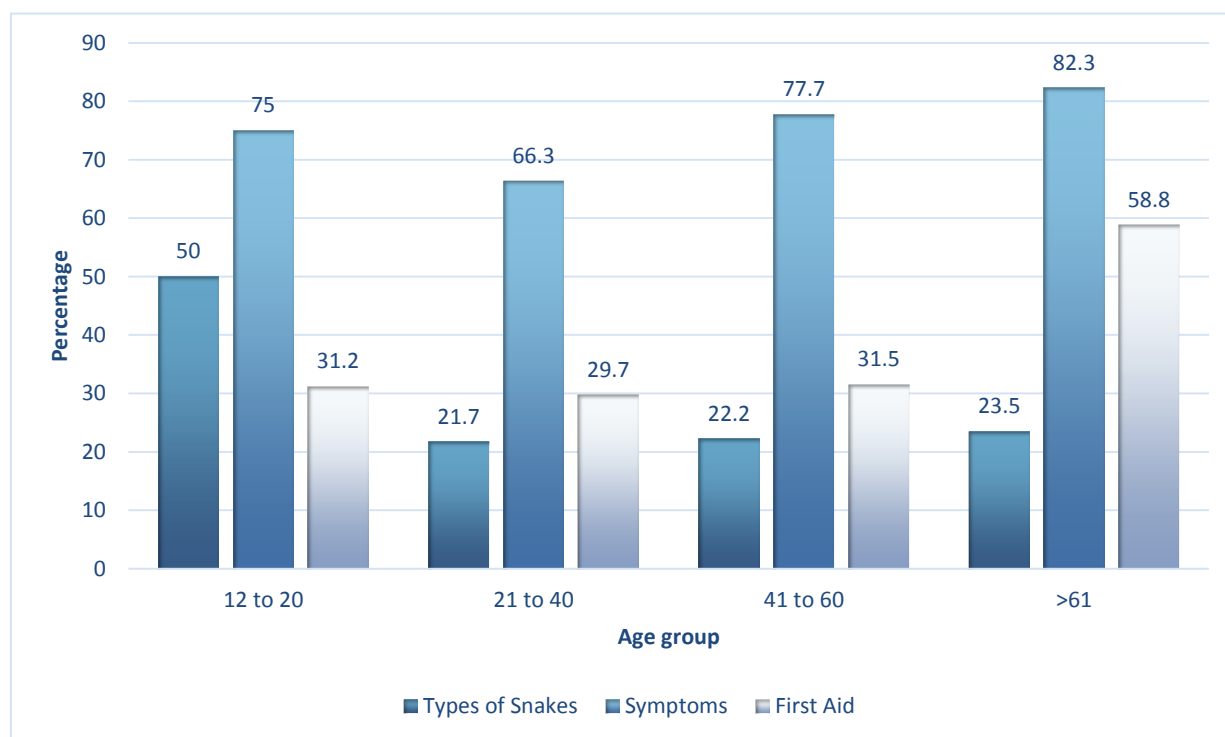
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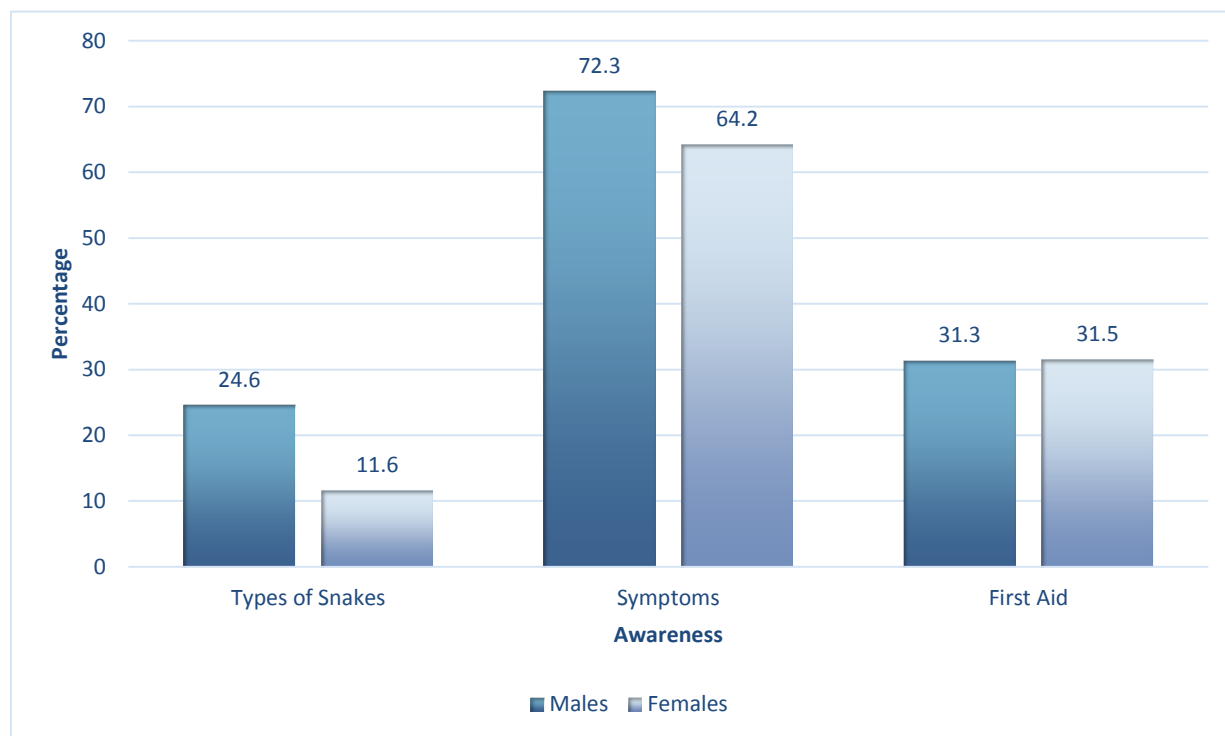
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## Figures

FIGURE 1 RELATIONSHIP BETWEEN AGE AND AWARENESS OF SNAKE BITE



**FIGURE 2 RELATIONSHIP BETWEEN SEX AND AWARENESS OF SNAKE BITES****FIGURE 3 RELATIONSHIP BETWEEN VARIOUS OCCUPATIONS AND SNAKE BITE AWARENESS**