



ASSESSMENT OF KNOWLEDGE ABOUT FIRST AID METHODS, DIAGNOSIS, AND MANAGEMENT OF SNAKEBITE AMONG NURSING STUDENTS.

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Abstract:

This study has been undertaken to determine the knowledge of first aid methods , management, of snakebite . Important medical emergency encountered in many parts of the world. It is a threat to public health, particularly in rural areas where snakes are more likely to be found. Snakebite remains a significant source of morbidity and mortality particularly in regions where agriculture is the main occupation for a large number of people which increases the likelihood of encountering snakes. According to the World Health Organization (WHO), 4.5 to 5.4 million people experience snakebites per year. traditional remedies instead. Some countries have a more than 70% rate of under-reporting, particularly in poorly equipped rural regions. Signs and symptoms of snakebites caused by different species vary widely. three thousand different species of snakes are recognized. Five hundred species of those belong to either one of 3 families of venomous snakes which are Viperidae, elapid, and Hydropedal Around 250 venomous snakes are listed by the WHO as medically important. Snakebite is a serious medical emergency, with the result ranging from local tissue damage to the involvement of almost all vital organs of the body, which may lead to severe paralysis that threatens the ability to breathe, result in bleeding problems that may develop into fatal haemorrhages, and lead to permanent renal failure and extensive destruction of local

tissue and possibly permanent disability or limb loss. Children tend to develop quicker and more severe reactions compared to adults due to the difference in body size. The patients of snakebite often use traditional remedies and get improper first aid measures before presenting to the hospital. Mortality from snakebites is due to the lack of awareness about the proper management of victims. Proper first aid in managing snakebite victims is one of the effective ways to decrease mortality.

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. Over 2,000 species of snakes are known worldwide, of which around 400 are poisonous. These snakes belong to the families, Elapidae, Viperidae, Hydrophidae and Colubridae. Viper bites are more common than other poisonous snakebites in human beings. The different varieties of vipers, Russell's viper (*Viperarusselli*) commonly inhabits the south Asian countries, and the Russell's viper's bite is regarded as an occupational hazard for the farming community. The World Health Organization has estimated that nearly 1,25,000 deaths occur among 2,50,000 poisonous snake bites worldwide every year, of which India accounts for 10,000 deaths. The involvement of the predominantly young, healthy and the working population in rural areas which are compounded by poverty and the lack of access to health care services in these areas, signify the social and economic impact of this problem. Delay in the antivenom administration especially in rural areas are the important factors responsible for high mortality.

Research methodology:

1. Study Design.

This study used the cross-sectional design and data was collected through a questionnaire-based interview.

2. Study Setting.

The study will be conducted in Nandha college of nursing, at Erode, Tamil Nadu.

3. Study Population and Sample Size.

During the study period, the approximate number of nursing students at Nandha college of nursing was 250. A sample of 60 nursing students from 3rd year nursing student was selected by convenience sampling technique and interviewed in the current study. Participants were eventually chosen using a convenience sampling approach because it saves researchers time and cost and because of ease of accessibility.

4. Inclusion and Exclusion Criteria.

In order to be included in this study, a participant was required to be a student of studying in nursing college. Students who were still in the third years of study or who did not complete the questionnaire were excluded.

5. Data Collection Form.

We developed a questionnaire that was based on the World Health Organization (WHO) protocol for the management of snakebite injuries after reviewing the existing literature on the subject. This

data collection tool consisted of eight sections: (i) Emergency Medicine International In the first section, items on specific demographic characteristics were included. these were the age of the participant, gender, type of residence, previous experience. (ii) the second section contained 10 questions that address the self-evaluation of aspects related to snakebites. these aspects were the participant's self-assessment of his or her knowledge (poor, average, or good), the perceived demand for knowledge on snakebites (low, moderate, or high), any previous experience of snakebite by the participant or a relative of her or his, any previous training on the management of snakebite the participant received, the perceived need for training on this topic, the perceived adequacy of the healthcare facilities for dealing with snakebites, the participant's source of knowledge on the management of snakebites (medical education, written media, television, the Internet, and/or family and friends), and finally the first reaction of the participant if they experience a snakebite. (iii) In the third section, the scale of knowledge about the snake (the most common venomous snake in india) was assessed, through 13 questions of the true/false type. the participant received a point for every right response, and the total score on knowledge equalled the total of the points he or she scored on these 13 items. (iv) the fourth section investigated the participant's scale of knowledge on the symptoms and signs of venomous snakebites in general, using a list of 16 symptoms/signs of venomous snakebites. the participants were asked to identify all the symptoms/signs they thought can be caused by snakebite from that list, and the number of symptoms/ signs they marked on that list was reported as the final score on symptoms and signs knowledge. (v) the fifth section looked into the participant's scale of knowledge on laboratory testing that should be performed on snakebite victims, by listing 10 such tests and asking the students to identify all the laboratory tests they thought were necessary to perform on snakebite victims. the number of tests a participant selected was reported as that participant's final score on laboratory testing. (vi) the sixth section addressed the participant's scale of knowledge on anti-venom. It included 3 groups of items. the first group included 2 questions of the true/false type. the second group included 6 questions of the multiple-choice type, each followed by 3 possible options, as well as the option to answer with I don't know. the final group presented a list of 3 complications after the administration of anti-venom and the participants were asked to identify the potential complications after the administration of anti-venom on that list. the students received a point every time they answered correctly to a question in the first two groups, as well as one point for every complication they marked in the final group. the total of all the points they scored was the final score on anti-venom knowledge. (vii) In the seventh section, we tested the participant's scale of knowledge on the first aid approach to snakebites using 15 questions of the true or false type, with an option to respond with I don't know. One point was allocated for every correct response and the total of points the participant scored was reported as that participant's final score on first aid. (viii) the final section investigated the participant's attitude regarding snakebites and snakes generally using 8 items that address the proper attitude regarding snakebites and snakes. the students were asked to label every item as false or true, or respond with I don't know. One point was allocated for every correct answer to these items, and the total of points scored by a participant represented his or her final attitude score.

6. Validity and Reliability Study.

A panel of three expert researchers who are qualified in this form of studies reviewed the content, assessed the validity of the final questionnaire, and evaluated the organization, medical terms, suitability, and completeness. After developing the questionnaire, the contents and design of the

questionnaire were pilot-tested on 10 nursing students, and modifications were done as necessary. On average, conducting the interview and completing the questionnaire took around 15 minutes per student. These ten nursing students were not included in the final analysis. The questionnaire was developed in English and the interviews were conducted in the same language in both the pilot study and the final study. Data for this research was collected through self-administered questionnaires.

7. Statistical Analysis.

Data analyses were conducted by IBM Statistical Package for the Social Sciences (SPSS) Version 21. Continuous variables were expressed as means and SD and categorical variables as frequencies (percentage). The test was applied to check the normality for all scores. For variables that did not follow the normal distribution, median and interquartile ranges were used. Mann–Whitney U test, and Chi-square test were employed in testing the differences between different categories of variables as appropriate. P value was assumed to be statistically significant if it was <0.05 .

Results and discussion:

1. Demographic Data. A total of 60 nursing students from Nandha college were surveyed. The average age of the participants was 20 with an SD of 0.8 (years), and the majority (54%) came from rural areas. Nearly half of them (52%) were females, 42% were in their third year. Having a family member who was affected by a snakebite was not uncommon among the participants (20%), and 16% of the respondents themselves were bitten by snakes in the past. However, only 42% of students received some training in dealing with snakebites. Self-Evaluation. A minority of the students (29%) rated their knowledge of snakebites as good, and 38% believed that there was a high demand for knowledge on snakebites as shown in, which summarizes the participants' responses to self-assessment items. Knowledge of Snakebites Diagnosis and Management. The rates of correct responses to items on knowledge about the snake. Most students (75.5%) recognized venomous as the most commonly encountered venomous snake in India and 67.5% of them correctly answered that snakes' toxin contains the neurotoxic compound. However, only 8.5% of the students knew that the most common sign in the clinical setting of envenomation is not rising body temperature, and 9% knew that snakes' toxin contains cardiotoxin compound. The percentage of correct responses of participants about the general signs and symptoms of venomous snakebites. The majority of students knew that convulsions (80%), unconsciousness (79.5%), dizziness and vomiting (77.5%), and blurring of vision (75.5%) are among the symptoms and signs of snakebites. On the other hand, a minority of them knew that scanty or no urine output (33.5%), bleeding from gum and vomiting (35%), and dark colored urine (35.5%) could also be symptoms and signs of snakebites. The majority of the participants knew that complete blood count (76%) and 20-minute whole blood clotting (73%) are important laboratory tests to order in snakebite cases whereas 51% knew that urine analysis must also be performed. The participants' rates of correct responses to items on knowledge about anti-venom including its preparation and the complication that may occur as a result of anti-venom administration. The rates of the correct response to items about first aid methods in cases of snakebite are presented. Most of the participants knew that asking the victim to stay calm is helpful (85%) and knew that the snakebite patients should be transported to the hospital as soon as possible after the bite (74.5%), whereas only 15.5% knew that applying an ice pack to the bite location is not helpful. Attitudes of Students towards Snakebites and Snakes. Table 8 presents the results of the participants' attitudes regarding

snakebites. Only 15.5% acknowledged that it is not necessary to kill the snake after it bites the victim, and 17% knew that it is not true that a snake would capture the image of the offender who teases it and take revenge later. 3.5. Comparisons between Students. Demographic Characteristics and their Levels of Knowledge score on this topic was significantly associated with gender ($p = 0.004$) wherein male students scored higher than their female counterparts. the relationship between the knowledge score of symptoms and signs and the participants characteristics. the association of knowledge score of laboratory investigations and the participating students demographic characteristics is presented. the relationship between the knowledge score of anti-venom and the students' characteristics is shown. Finally, the knowledge score of first aid correlated with the students demographics, wherein living in a village was significantly correlated with a better knowledge score (p value of 0.041)

Comparison of the Demographic Characteristics of Students and their Attitude Scores. The relationship between attitude scores and the demographic characteristics of the participants. there was no significant association between attitude score and gender, residency, or year of study (all p values were >0.05). 3.7. Correlations between Scales. A weak yet significant positive correlation was found between venomous snake knowledge scale and symptoms and signs knowledge scale ($r = 0.426$, $p < 0.001$). venomous snake knowledge scale also had a positive correlation with laboratory testing scale ($r = 0.279$, $p < 0.001$), anti-venom scale ($r = 0.140$, $p = 0.048$), first aid scale ($r = 0.180$, $p = 0.011$), and attitude scale ($r = 0.305$, $p < 0.001$). Symptoms and signs knowledge scale also had a weakly positive correlation with each of the following: laboratory testing knowledge scale ($r = 0.419$, $p < 0.001$), anti-venom knowledge scale ($r = 0.314$, $p < 0.001$), first aid knowledge scale ($r = 0.216$, $p = 0.002$), and attitude scale ($r = 0.283$, $p < 0.001$). Another weakly positive yet significant correlation was found between laboratory testing knowledge scale and antivenom knowledge scale ($r = 0.439$, $p < 0.001$), first aid knowledge scale ($r = 0.253$, $p < 0.001$), and attitude scale ($r = 0.282$, $p < 0.001$). We also found a weakly positive yet significant correlation between the anti-venom scale and both the first aid knowledge scale ($r = 0.318$, $p < 0.001$) and the attitude scale ($r = 0.316$, $p < 0.001$). Lastly, we found a weakly positive yet significant correlation between the first aid knowledge scale and attitude scale ($r = 0.534$, $p < 0.001$).

Discussion Our goal in the current study was to evaluate nursing student's knowledge of snakebite diagnosis and management. We also assessed their attitude toward snakes and snakebites. We discovered major knowledge gaps related to snakebites even though only 38% of the participating students rated the need for knowledge regarding snakebites as high, which reflects poor awareness about the importance of snakebites as a serious medical problem that causes significant morbidity and mortality.

Moreover, only 43.5% of the students cited formal education as their source of information regarding snakebites, which may manifest as improper snakebite management. this finding emphasizes the need for training classes that focus on this topic to prepare the students for properly dealing with snakebites cases. the knowledge deficits that we found span all the field that we explored in this study as evidenced by the mean knowledge scores of snakes (5.1 out of 13), signs and symptoms (9.6 out of 16), laboratory investigations (6.1 out of 10), anti-venom (4.2 out of 11), and first aid methods (6.6 out of 15). Also, the attitude score of the participants was 3.7 out of a maximum of 8 points. these results are in concordance with findings of studies conducted in India.

Conclusions :

In conclusion, this survey revealed the gaps in the knowledge regarding dealing with cases of snakebites properly and scientifically, as well as the lack of awareness regarding how important this subject is for nursing students. We recommend focusing more on this topic considering the high likelihood that nursing students will need to deal with snakebites in their professional or even personal life. Our results also pointed to specific areas in which gaps of knowledge were excited, emphasizing the need for more studies to assess the knowledge and practices regarding first aid among other members of the healthcare teams in India.

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