



## ASSESSMENT OF KNOWLEDGE, ATTITUDE AND PRACTICE TOWARDS ANIMAL BITES AND RABIES AMONG THE ATTENDEES OF A TERTIARY CARE HOSPITAL, KULASEKHARAM, KANYAKUMARI.

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### ABSTRACT

**Background:** Rabid animal bites causing rabies remains as a public health burden in terms of morbidity and mortality globally. Annually about 59,000 persons die of rabies, of which 20,000 is from India alone. Inadequate knowledge and inappropriate attitude and practice towards animal bites is a major hindrance in prevention of rabies deaths. **Aims&Objectives:** To assess the knowledge, attitude and practice towards animal bites and rabies among the attendees of a tertiary care hospital, Kulasekharam, Kanyakumari. **Materials& Methods:** A cross-sectional study was conducted from October 2019 to December 2019 among the animal bite victims and the attendees visiting the private tertiary care teaching hospital in Kulasekharam, Kanyakumari district. They were interviewed by using pre-tested proforma that contained questions on knowledge, attitude and practice. **Results:** In our study, 207 participants were enrolled. 58% of them were males and 42% were females. 96.1% of the study subjects have heard of rabies. 74.4% owned pets. 84.9% were aware disease was fatal. 71.6% followed appropriate first aid measures but 19.3% had practice of applying irritants to the bite wound. 83.1% consulted an allopathic doctor and 77.8% were willing to complete the full course of vaccination. **Conclusion:** The attitude and practice of the study participants was good as majority of the study participants took appropriate first aid measures, consulted an allopathic doctor for treatment and willing to take full course of vaccination following an animal bite

**KEYWORDS :** Animal bites, Rabies, fatal disease, KAP, zoonoses

### INTRODUCTION:

Animal bites cause a huge burden in terms of morbidity and mortality globally. As per the World Health Organization (WHO), the dog bites are the main cause for injuries annually, followed by snake bites (5 million), cat bites (2-50%) and Monkey bites (2-21%) worldwide.<sup>1</sup> These bites could be caused by rabid animals.<sup>2</sup> In India, 17.4 million animal bite occurs every year and every 2 seconds, a person is bitten. The annual incidence of animal bites in India is 1.7% (or 17 per 1000 persons).<sup>3</sup>

Rabies is an endemic, highly fatal disease in India<sup>4</sup> which is transmitted to humans through exposure to saliva from infected animals (from bites, scratches, or licks on broken skin and mucous membranes).<sup>5</sup> The estimated incidence of rabies in India is 2.74 cases per 100 000 people annually.<sup>6</sup> In India, every 30 minutes, someone dies from rabies.<sup>3</sup> Rabies is the 10<sup>th</sup> biggest cause of death due to infectious disease worldwide. Annually about 59000 persons die of rabies, of which 20,000, that is nearly one-third are from India alone.<sup>2</sup>

Rabies is a viral zoonosis that occurs following a transdermal bite or scratches, or licks on broken skin and mucous membranes from an infected animal. The causative agent belongs to the genus *Lyssavirus* of the family *Rhabdoviridae*. The signs and symptoms include discomfort or a prickling or itching sensation at the site of the bite, progressing within days to acute symptoms of cerebral dysfunction, anxiety, confusion, agitation, delirium, hallucinations, hydrophobia (fear of water), and insomnia. Once clinical signs of rabies appear, the disease is nearly always fatal, and treatment is typically supportive. To date less than 20 cases of human survival from clinical rabies have been documented.<sup>7</sup>

Though rabies being a 100% fatal disease, it is also 100% preventable<sup>8</sup> by following proper and adequate Post Exposure Prophylaxis (PEP). PEP is considered of monumental importance in prevention of rabies.<sup>9</sup> PEP consists of thorough wound washing with soap and water, Anti-rabies vaccination (ARV) and timely administration of Rabies immunoglobulin (RIG) for category III bites.<sup>10</sup> In India, Updated Thai Red Cross regimen of Intradermal vaccination (2-2-2-0-2) is adopted.<sup>11</sup>

Many myths and cultural rituals still persist without any logic and appropriate knowledge regarding rabies.<sup>12</sup> A gross lack of awareness about animal bites, its prevention and management is one of the factors that leads to high human mortality from rabies. Though mortality can be prevented by proper PEP, these practices are potentially undermined by widespread traditional healing practices, such as application of chilli/turmeric powder to bite wounds.<sup>13</sup>

Hence adequate knowledge about animal bites, its prevention and management helps in reducing the burden of rabies in the community. With this notion in mind, the present study was conducted to assess the knowledge, attitude and practice towards animal bites and rabies among the attendees of a tertiary care hospital, Kulasekharam, Kanyakumari.

### MATERIALS AND METHODS:

A cross-sectional study was conducted from October 2019 to December 2019 among the animal bite victims and the attendees visiting the private tertiary care teaching hospital in Kulasekharam, Kanyakumari district.

#### Sample size:

Sample size was estimated using the formula  $n = Z^2 pq/d^2$  where,  $p = 84\%$  (Knowledge about rabies according to study conducted in by Tripathy RM et al.<sup>14</sup>)  
 $z = 1.96$  (considering 95% confidence level)  
 $d =$  absolute precision of 5%  
 $n = 207$  study subjects

#### Inclusion Criteria:

The animal bite victims and attendees above 18 years of age

#### Exclusion Criteria:

The subjects who did not consent for the study.

### METHODOLOGY:

Ethical clearance was obtained from Institutional Ethical Committee. Informed verbal consent was sought from the study. The study participants fulfilling the inclusion and

exclusion criteria were selected using simple random sampling and were interviewed by using a semi-structured, pre-designed and pre-tested, semi- open ended self-administered proforma that included data regarding socio-demographic profile and questions to assess knowledge, attitude and practice regarding rabies. Proper instructions on filling the proforma were given before the start of the interview.

**Statistical Analysis:**

Data entered in Microsoft Excel 2016 and analyzed using SPSS version 20. Descriptive statistics was employed for data analysis and depicted as proportions and percentages. Results depicted as tables and graphs.

**RESULTS:**

In our study, 207 study subjects who fulfilled the inclusion and exclusion criteria were interviewed to assess the knowledge, attitude and practice towards animal bites and rabies.

**Table 1: Socio - Demographic characteristics of the Animal bite victims**

Socio-Demographic Characteristics	No. of Subjects (n=207)
<b>Age</b>	
18 - 40 years	106 (51.2)
> 40 years	101 (48.8)
<b>Gender</b>	
Male	120 (58.0)
Female	87 (42.0)
<b>Geographical Distribution</b>	
Urban	48 (23.2)
Rural	159 (76.8)
<b>Socio-Economic Status</b>	
Upper	29 (14.0)
Middle	79 (38.2)
Lower	99 (47.8)
<b>Education</b>	
Primary and Middle school	62 (30.0)
Higher secondary	54 (26.0)
Degree	66 (31.9)
Illiterate	25 (12.1)
<b>Pet Ownership</b>	
Yes	154 (74.4)
No	53 (25.6)

Figures in the parenthesis indicate percentage (%)

Table 1 shows the distribution of study subjects according to the socio-demographic characteristics. In this study, majority (51.2%) of the study subjects belonged to age group of < 40 years, majority (58%) were males, majority (76.8%) were from rural population as the hospital is located in a rural area and 74.4% owned a domestic animal as a pet.

**Table 2: Knowledge of study participants towards rabies prevention and management**

Knowledge Questions	No. of Subjects
<b>Have you ever heard of the disease?</b>	<b>n = 207</b>
Yes	199 (96.1)
No	8 (3.9)
<b>How is the disease caused?</b>	<b>n = 199*</b>
Dog bite	159 (79.9)
Cat bite	22 (11.1)
Bat/Monkey/cheetah bite	9 (4.5)
Don't know	9 (4.5)
<b>What are the symptoms of rabies?</b>	<b>n = 199*</b>
Hydrophobia	155 (77.9)
Paralysis	22 (11.1)
Convulsions	12 (6.0)
Aerophobia	4 (2.0)

Don't know	6 (3.0)
<b>Is the disease fatal?</b>	<b>n = 199*</b>
Yes	169 (84.9)
No	18 (9.1)
Don't know	12 (6.0)
<b>Is the disease vaccine preventable?</b>	<b>n = 199*</b>
Yes	135 (67.8)
No	44 (22.1)
Don't know	20 (10.1)
<b>When should you take vaccination?</b>	<b>n = 199*</b>
Before the bite	18 (9.1)
After the bite	121 (60.8)
Both	56 (28.1)
Don't know	4 (2.0)
<b>Do you know about the availability of vaccines for animal bite?</b>	<b>n = 199*</b>
Government hospital	179 (90.0)
Private hospital/ Nursing homes/ Clinics	10 (5.0)
Don't know	10 (5.0)
<b>Source of information about the disease</b>	<b>n = 199*</b>
TV/radio/Newspaper	141 (70.9)
Health worker/ Hospital staff	40 (20.1)
Others	18 (9.0)

Figures in the parenthesis indicate percentage (%)

\*Number of subjects who were aware of the disease

In our study, 96.1% of the study subjects were aware of the disease. Hence only those who were aware of the disease were further assessed for knowledge about the disease (n= 199). Majority (69.9%) of these participants were aware that dog was the predominant animal causing rabies. 84.9% were aware that the disease is 100% fatal and 67.8 % knew it is a vaccine preventable disease. Majority (90%) of the participants were aware that vaccines are available in the government hospitals free of cost. (Table 2)

**Table 3: Attitude and practice of study participants towards animal bites and rabies prevention and management**

Attitude and Practice Questions	No. of Subjects n = 207
<b>Do you have pet animals?</b>	
Yes	154 (74.4)
No	53 (25.6)
<b>Do you vaccinate your pets?</b>	<b>n = 154*</b>
Yes	132 (85.7)
No	10 (6.5)
Not sure	12 (7.8)
<b>What will you do immediately, following an animal bite?</b>	
Wound wash with water alone	4 (1.9)
Wound wash with water and Soap	148 (71.6)
Application of irritants like turmeric powder, chilly powder, lime, plant juices etc	40 (19.3)
Do nothing	15 (7.2)
<b>Willing to take the animal bite victim for treatment?</b>	
Doctors	172 (83.1)
Traditional healers	17 (8.2)
Not to take anywhere	18 (8.7)
<b>What will you do to the animal following a suspected bite?</b>	
Observation	99 (47.8)
Kill the animal	82 (39.6)
Inform authorities	21 (10.1)
No action taken	5 (2.5)
<b>Have you been vaccinated against rabies?</b>	

Yes	45 (21.7)
No	160 (77.3)
Not sure	2 (1.0)
<b>Are you willing to go for complete vaccination?</b>	
Yes	161 (77.8)
No	46 (22.2)

Figures in the parenthesis indicate percentage (%)

\*Number of subjects who owned pets

In our study, the participants had a positive attitude towards prevention and management of rabies that 83.1% visited the doctors for treatment and 77.8% were willing to complete the full course of vaccination; majority of them (71.6%) followed adequate first aid by washing with soap and water. (Table 3)

## DISCUSSION:

Animal bites poses a major public health burden worldwide as they are the main cause of Rabies. Lack of awareness about the fatality of the disease, myths and misconceptions associated with the disease and its prevention and management are the few factors responsible for the larger burden of disease in India.<sup>15</sup>

In our study, 96.1% of the study subjects have heard of rabies previously which is consistent with the study done by Laishram J et al.<sup>16</sup> and Tiwari HK et al.<sup>17</sup> in districts of Pune and Manipur respectively; whereas in a study done by Singh U S et al.<sup>18</sup> in Gujarat, all the participants were aware of the disease and a much lower awareness was seen in people of Orissa<sup>14</sup> where only 84% of the people were aware of the disease. This discrepancy in the awareness about the disease may be attributed to difference in the educational status of the individuals or due to different study units. This also indirectly points out the role of media and health workers in providing health information to the public as our study reveals 70.9% of the information is from TV/radio/Newspaper followed by health workers as the source of information.

In our study, 79.9% of the participants were aware that dog was the predominant animal causing rabies followed by cats (11.1%) which is in line with the study done by Lai P et al.<sup>19</sup> that showed 77% reported as the main biting animal; where as other studies across various parts of the country shows a higher proportion of participants who were aware that dog mediated rabies was the main cause which ranges between 97.1% to 98.6%.<sup>12,13,17,18</sup> There is also a need to educate people that rabies could be caused by other animals like cats, bats, monkeys too. In our study, 84.9% of the study subjects were aware that rabies was a fatal disease which is consistent with the findings of the studies done by Laishram J et al.<sup>16</sup> and Tiwari HK et al.<sup>17</sup> and much higher when compared with the study done by Kapoor P et al.<sup>12</sup> that showed a proportion of 68.2%. In this study, 67.8% were aware that it is a vaccine preventable disease where as other studies show a proportion that varies widely between 14.9% to 79.4%.<sup>12,14,16,19</sup> Hence it is pivotal in educating people that rabies is 100% fatal but 100% preventable if animal bites victims are vaccinated. In our study, 90% of the participants were aware rabies biologicals are available freely in Government hospital which is almost similar to a study done by Singh US et al.<sup>18</sup> in Gujarat where as a study done by Lai P et al.<sup>19</sup> showed that only 27% were aware about the availability of vaccines and immunoglobulins. This emphasizes the need for the people to be informed about the facilities and services that are available for prevention of rabies and where they have to approach for such animal bites. In our study, 74.4% owned pets and 85.7% had vaccinated their pets where as studies done in parts of Orissa<sup>14</sup> and Gujarat<sup>18</sup> showed a much lower proportion of 10% and 24.4% respectively and a study done in Delhi<sup>19</sup> showed a proportion

of 68% vaccination of their pets. As vaccinating the pets, plays a vital role in prevention of rabies, it was a good attitude and practice of the study participants to vaccinate the pets in our study. Regarding attitude towards the biting animal, 47.8% of the participants reported they would observe the animal, 39.6% reported they would kill the animal whereas in a study by Laishram J et al.<sup>16</sup> only 2.9% of the participants reported they would kill the animal and majority of the participants reported they would observe the animal. Following an animal bite, 71.6% of study participants reported they would wash their wound with soap and water as a first aid measure where as studies done by Kapoor P et al.<sup>12</sup>, Tripathy RM et al.<sup>14</sup> Singh US et al.<sup>18</sup>, Lai P et al.<sup>19</sup> showed a much lower proportion of people who followed appropriate first aid measures. 77.8% of the subjects were ready to complete the full course of vaccination; 19.3% of our participants reported, they use irritants like chilli powder, turmeric powder, lime, plant juices etc following an animal bite which are inappropriate practices that fasten the migration of the rabies virus into the nervous system. Majority (83.1%) of the study participants in our study visited allopathy doctors for treatment where as 8.2% would depend on traditional healers and 8.7% would never take any treatment and in a similar study by Tripathy RM et al., 77% visited allopathy doctors, 19% traditional healers and 12.5% quacks and 4% would take no treatment.<sup>14</sup> This again highlights the importance of educating the public on "what to do?" following an animal bite and also the quacks and traditional healers to refer the animal bite victims for receiving Anti-rabies vaccine and immunoglobulins.

## CONCLUSION:

In our study, 96.1% of the study subjects were aware of the deadly disease, rabies. The attitude and practice of the study participants was good as majority of the study participants took appropriate first aid measures, consulted an allopathic doctor for treatment and willing to take full course of vaccination following an animal bite. The study also highlights the importance of educating the people on management of animal bite cases following an animal bite and the preventive measures to be taken against rabies through schools, mass media and health care workers. Vaccination of all pets should be made compulsory for all pet owners. The Information, Education and Communication component can be strengthened through the National Rabies Control Programme that is still in the primitive stage of implementation nationally.

## Acknowledgement:

The authors would like to thank all the participants of the study for their full co-operation during the study.

## Funding: None

**Conflict of Interest:** None declared

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