

## ORIGINAL RESEARCH ARTICLE

# A cross-sectional study of awareness regarding dog bite and its management in urban community of Kolkata

Dr Kajal Kumar Patra<sup>1</sup>, Dr Sumit Poddar<sup>2</sup>, Subhasish Adak<sup>3</sup>,  
Kishore P Madhwani<sup>4\*</sup>, Jitendra Kumar Singh<sup>5</sup>

<sup>1</sup>Professor and Head, Dept of Obstetrics and Gynaecology, Gouri Devi Institute of Medical Science, Durgapur, West Bengal

<sup>2</sup>Senior, Critical, Care & Anti Rabies Consultant, H.P. Poddar Memorial Clinic & Nursing Home, Kolkata, India

<sup>3</sup>DEIC, Physiotherapist Purulia Government Medical College and Hospital, Purulia, West Bengal

<sup>4</sup>Occupational Health & Wellness Consultant, Mumbai, Maharashtra, India

<sup>5</sup>Research Associate, Sociologist, Kolkata, West Bengal, India

### ABSTRACT

**Background:** Rabies is a neglected zoonotic tropical disease that usually affects the poorest communities. Rabies is 100% fatal and at the same time 100% preventable. A huge proportion of death due to rabies occurs in Asia and Africa, and India is reported to have the highest incidence of rabies. The present study was conducted to study awareness and perception about dog bite cases in the urban area of Kolkata. **Objectives:** The study was conducted to 1) determine the knowledge of people about dog bites. 2) To assess the awareness of people pertaining to rabies and anti-rabies vaccination. 3) To study the behavioural practices of people after the dog bites. **Methods:** Across sectional study was conducted in the Tangra area of a Kolkata. Study was conducted with the help of pre-tested, semi-structured questionnaire for the period of two months (October 2021 to November 2021). All individuals above the age of 18 years were included into the study. Informed consent was taken prior to conduct of the study. **Results:** Total 200 participants included in the study, 102 (51%) were females and rest 98 (49%) were males. Out of these 186 (83%) were aware about dog bite causes disease and among these 112 (67.47%) were aware that dog bite causes rabies. Among the participants, 188 (94%) were aware about the vaccine availability and 162 (86.17%) knew vaccine is available in Government Hospital. In the study 82% of dog bite victims received treatment. **Conclusion:** There is lack of awareness regarding dog bite and its management among the urban population. It is necessary to update the knowledge among the study population regarding dog bite management

**Key words:** Dog bite, Rabies, Anti-rabies vaccine

**Introduction:** Rabies is a neglected zoonotic tropical disease that usually affects the poorest communities. It is the world's deadliest disease which has 100% fatality and at the same time 100% preventable. Rabies is endemic in eight countries of the World Health Organization (WHO) South-East Asia Region (SEAR), except the Democratic People's Republic of Korea, Maldives, and Timor-Leste. [1] Almost 95% of the human cases are from Asia and Africa and 99% of all human rabies is transmitted through dog bites.[2] Globally, it is estimated that rabies accounts for more than 59,000 deaths every year and the majority of human rabies deaths occur due to biting of the rabid dogs. In India, rabies is a problem of considerable magnitude. India is endemic for rabies and except for the islands of Andaman and Nicobar and Lakshadweep, which are historically rabies-free. India is one of the countries that has the highest population of stray dogs in the world. With these stray dogs being unvaccinated, Indians are at high risk of getting rabies. In India, West Bengal reports the highest number of rabies cases every year.[3] Many countries achieved zero human rabies death by following strategies like awareness campaigns, mass dog vaccination campaigns, national rabies notification, and a decentralized surveillance system. The global conference of rabies constructed a framework for the elimination of human death from dog-mediated rabies by 2030. To achieve this target, the most important strategy should be focusing on continuous and consistent mass awareness campaigns on health-seeking behavior during the animal bites, proper animal bite wound management, and vaccination strategies among the general

**Corresponding Author :** Dr Kishore P Madhwani, Occupational Health & Wellness Consultant; Centre of Excellence & Research in Occupational Health, Wellness & Family Medicine, Jaiwanti Clinic : D/ 49, Simla House, Napean Sea Road, Mumbai – 400036, Maharashtra, India, Email : kishorepmadhwani@gmail.com, Phone : 98210 86038

**Received :** 12.01.2022

**Revised:** 16.01.2022

**Accepted:** 22.01.2022

**Published :** 31.01.2022

public. A study conducted by Kapoor et al. in India (2019), revealed that only 22.5% of respondents had good knowledge, 56% had fair, and 21.5% had poor knowledge.[4]

Considering the situation, our study was conducted to study awareness and perception about dog bite among the population in the urban area of Kolkata.

#### MATERIALS & METHODS:

**Study area :** A cross-sectional study conducted in the Tangra area of Kolkata, West Bengal.

**Study period :** Study was conducted for the period of two months i.e. 1st October to 30th November 2021 and people of the Tangra Area were included in the study.

**Study subjects :** All individuals above the age of 18 years were included in to the study. Informed consent was taken prior to conduct of the study. Total 200 subjects were included in the study.

**Sampling method :** A simple random sampling technique was used for the selection of study participants.

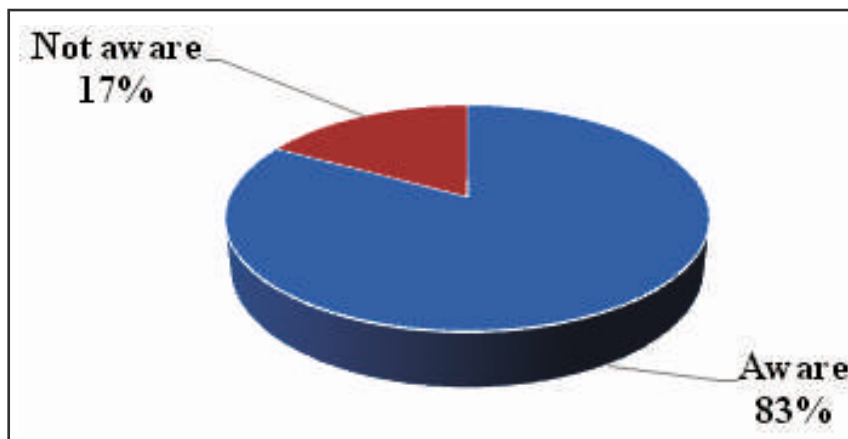
**Study tool and data collection :** A structured questionnaire was prepared wherein the first part with the demographic details and the second part have questions assessing knowledge of people about dog bites, awareness of people pertaining to rabies and anti-rabies vaccination and behavioural practices of people after the dog bites. The data was collected by pre-tested, semi- structured questionnaire and interview method by the house to house visit after getting the written informed consent in the native language.

**Data analysis :** The data was entered and tabulated in Microsoft Excel sheet and was analyzed using Statistical Package for the Social Sciences (SPSS) version 20.0. Results were expressed in frequencies.

#### RESULTS:

Total 200 participants were included in the study. 102 (51%) were females and rest 98 (49%) were males.

**Figure 1: Awareness of disease caused by dog bite (n=200)**



Out of 200 study participants, 166 (83%) were aware that dog bite causes disease while 34 (17%) were not aware that dog bite causes disease (Figure 1).

**Table 1: Showing the knowledge about the disease caused by dog bite (N=166).**

Disease	Frequency	(%)
Rabies	112	67.47
Don't know	54	32.53
Total	166	100.00

Out of 166, who were aware that dog bite causes the disease, 112 (67.47%) were aware that dog bite causes rabies and rest 54 (32.53%) were not aware that rabies is caused by dog bite (Table 1).

**Table 2: Showing the knowledge about symptoms of rabies among the study population (n=112).**

Symptoms	Frequency	(%)
Hydrophobia	32	28.57
Madness	52	46.43
Bleeding	22	19.64
Fever	6	5.36

Table 2 shows the knowledge about the symptoms of rabies; 52 (46.43%) told about madness followed by hydrophobia 32 (28.57%), bleeding 22 (19.64%) and fever 6 (5.36%).

**Table 3: Showing awareness about the management of dog bite case among the study population (n=200)**

Awareness about taking care of wound	Frequency	(%)
Applying lime	28	14.00
Apply soil	5	2.50
Applying antiseptic	92	46.00
Tie the wound	84	42.00
Clean with water	112	56.00
Clean with water & soap	126	63.00

Table 3 shows awareness about the care taking of wound shows cleaning with water 112 (56%), cleaning with water and soap 126 (63%).

**Table 4: Showing awareness about anti-rabies vaccine among the study population**

Awareness about anti-rabies vaccine	Frequency	(%)
<b>Awareness about vaccine (n=200)</b>		
Yes	188	94
No	12	6
<b>Awareness about availability of vaccine (N=188)</b>		
Government	162	86.17
Private	26	13.83
<b>Awareness about number of doses of vaccines to be taken (N=200)</b>		
2	6	3.00
3	37	18.50
5	39	19.50
7	52	26.00
10	21	10.50
14	33	16.50
Don't know	12	6.00
<b>Awareness about site of administration of vaccine(N=188)</b>		
Abdomen	35	18.62
Buttock	19	10.11
Shoulder	123	65.43
Thigh	4	2.13
Don't know	7	3.72

Table 4 shows that 188 (94%) were aware about the vaccine is available for the dog bite, out of 188, 162 (86.17%) said that the vaccine is available in government hospitals while 26 (13.83%) said in private hospitals. Regarding number of doses of vaccines to be taken, a large number of participants answered 14 injections 33 (16.50%) followed by 7 injections 52 (26%), 5 injections 39 (19.5%). Similarly, about the site of administration for the vaccine to be given was shoulder 123 (65.43%), abdomen 35 (18.62%), buttock 19 (10.11%), thigh 4 (2.13%) and don't know 7 (3.72%).

**Table 5: Distribution according to practices about the management of the dog bite case among the study population.**

History of dog bite	Frequency	(%)
Yes	22	11
No	178	89
<b>Place of treatment (N=22)</b>		
Government	12	54.55
Private	6	27.27
Not taken any treatment	4	18.18
<b>Immediate care taken after dog bite (N=22)</b>		
Wash with water	8	36.36
Applied antiseptics	5	22.73
Dressing done	5	22.73
No care taken	4	18.18

Out of 22 victims of dog bite, 2 had changed their dietary habit by restricting to spicy & oily diet. History of dog bite found in study population is 11% and 54.55% victims have taken treatment at government hospital. After dog bite 8 (36.36%) had wash the wound with water and 5 (22.73%) applied antiseptics and dressing was done. No care was taken by 4 (18.18%). (Table 5)

Discussion: Study was conducted for the period of two month i.e 1st October to 30th November 2021 and people of the Tangra Area, Kolkata were included in the study. Total 200 participants were included in the study. 102 (51%) were females and rest 98 (49%) were males.

In the present study, 166 (83%) were aware that Dog bite causes disease; whereas out of these 112 (67.47%) were aware that Rabies is caused by dog bite.

WHO collaborative study Ichhpujani RL et al.<sup>5</sup> has similar findings i.e. 68.7% have heard about the rabies, 60.7% were aware that dog bite causes Rabies.

In the present study, awareness of wound management after dog bite was studied. It showed that wound to be cleaned with water 112 (56%), followed by tie the wound 84 (42%), clean with soap and water 126 (63%), applying antiseptics 92 (46%), application of lime 28 (14%). While the study conducted by Ichhpujani et al.<sup>5</sup> showed that only 31.9% felt that washing wound with soap and water, application of lime 6.8%.

Among the participants, 188 (94%) were aware about the vaccine availability for the dog bite, out of 188, 162 (86.17%) said that the vaccine is available in Government Hospitals while 26 (13.83%) said in private hospitals. A large number of participants answered 14 injections 33 (16.50%) followed by 7 injections 52 (26%), 5 injections 39 (19.5%).

Similarly, about the site of administration for the vaccine to be given was shoulder 123 (65.43%), abdomen 35 (18.62%), buttock 19 (10.11%), thigh 4 (2.13%) and don't know 7 (3.72%).

The findings were similar i.e. 86.6% were aware about the anti-rabies vaccine in the study conducted by Singh US, Choudhary SK.<sup>6</sup>

Study conducted by Singh US, Choudhary SK;<sup>6</sup> 79% told 14 injections and the site of administration 5.7% over abdomen. In the study conducted by Agarwal et al.<sup>7</sup> showed that 92% were aware about the injections are available at Government Hospitals.

Eighty two percent of dog bite victims received treatment in our study. The study conducted by Rumana R et al.,<sup>8</sup> 89.9% of dog bite victims received the treatment.

## CONCLUSIONS AND RECOMMENDATIONS:

There is lack of awareness and inadequate knowledge related to dog bite and its management: 83% were aware that Dog bite

causes disease; whereas out of these 67.47% were aware that Rabies is caused by dog bite. 63% participants were aware that dog bite wound should be cleaned with soap and water, 94% were aware about the vaccine availability for the dog bite. Eighty two percent of dog bite victims received treatment. The successful elimination of human rabies needs a multisectoral collaborative approach. Improved community awareness, forestalling animal rabies, and better access to affordable and potent human rabies vaccines are

essential for the elimination of human rabies.

#### ACKNOWLEDGEMENTS

Authors would like to acknowledge the patients who participated in this research study.

**Funding:** No funding sources

**Conflict of interest:** None declared

#### REFERENCES:

1. World Health Organization, Regional Office for South-East Asia. Strategic framework for elimination of human rabies transmitted by dogs in the South-East Asia Region. 2012. [Last accessed on 2022 January 12]. Available from: <https://apps.who.int/iris/handle/10665/205920>.
2. Who.int [Internet]. Rabies 2020. [Last accessed on 2020 Jul 06]. Available from: <https://www.who.int/news-room/fact-sheets/detail/rabies>.
3. Health Status Indicators: Cbhidghs, MoHFW. National Health Profile (NHP) of India-2019, 14th Issue. New Delhi: Jaina Offset Printers; 2019. p.112–3. Available from: <http://www.cbhidghs.nic.in/showfile.php?lid=1147>. [Last accessed on 2022 January 12]
4. Kapoor P, Baig VN, Kacker S, Sharma M, Sharma M. A cross-sectional study of knowledge regarding rabies among attendees of anti-rabies clinic of a teaching hospital, Jaipur. *J Family Med Prim Care* 2019;8:194-8
5. Ichhpujani RL, Chhabra M, Mittal V, Bhattacharya D, Singh J, Lal S. Knowledge, attitude and practices about animal bites and rabies in general community--a multi-centric study. *J Communicable Dis*. 2006 Dec;38(4):355-61.
6. Singh US, Choudhary SK. Knowledge, attitude, behaviour and practice study on dog bites and its management in the context of prevention of rabies in a rural community of Gujarat. *Indian J Community Med*. 2005 Jul-Sep;30(3):81-3
7. Agarwal N, Reddaiah VP. Knowledge, Attitude and Practice following dog bite: a community based epidemiological study. *Health Popul Persp Issues*. 2003;26(4):154-61.
8. Rumana R, Sayeed AA, Basher A, Islam Z, Rahman MR, Faiz MA. Perceptions and treatment seeking behaviour for dog bites in rural Bangladesh. *South-East Asian J Trop Med Public Health*. 2013 Mar;44(2):1-5