

Title: Knowledge Attitude and Practices Regarding Dog Bite Among Parents in Urban Community of Kolkata

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Keywords Dog behaviors, Dog bite, Misbeliefs and facts, Preventive measures, Rabies.

Abstract

Rabies is a fatal viral zoonotic disease but can be prevented by timely and appropriate post exposure prophylaxis. The children below the age group younger than 10 years represent the high risk group for dog attacks. Studies revealed that boys between the ages of 5 to 9 are bitten five times more by dogs than any other group of people. Rabies, a disease of antiquity continues to be a major public health problem in India. With around 1.06 lakh canine bite cases being reported in 2014-2015 and 40,000 in 2015 alone. Objectives: The present study was conducted to study awareness to determine the awareness regarding management an preventive measures of dog bite in the urban community of Kolkata.

ORIGINAL RESEARCH ARTICLE

Knowledge Attitude and Practices Regarding Dog Bite Among Parents in Urban Community of Kolkata

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ABSTRACT

Background: Rabies is a fatal viral zoonotic disease but can be prevented by timely and appropriate post exposure prophylaxis. The children below the age group younger than 10 years represent the high risk group for dog attacks. Studies revealed that boys between the ages of 5 to 9 are bitten five times more by dogs than any other group of people. Rabies, a disease of antiquity continues to be a major public health problem in India. With around 1.06 lakh canine bite cases being reported in 2014-2015 and 40,000 in 2015 alone. **Objectives:** The present study was conducted to study awareness to determine the awareness regarding management and preventive measures of dog bite in the urban community of Kolkata. **Methods:** A Cross-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 (March 2022 to April 2022). The subjects for the study were 100 parents of children in the age group of 4 to 14 years residing at the Tangra area of Kolkata who met the inclusion criteria. Informed consent was taken prior to conduct of the study. **Results:** Total 100 parents included in the study, 64% were females and rest 48% were males. 100% opined that dog bite is responsible for transmission, 32% opined scratch, 15% opined lick on broken skin/mucous membrane, 45% opined Drinking raw milk of rabid animal and 8% opined touching secretions of rabid animal. Majority (78%) of the study subjects had knowledge of immediate washing of the wound, but only 24% opined that wound should be washed more than 15 minutes. Only 64% had knowledge regarding RIG administration. Most of the parents (48%) still believe peri-umbilical area as the site of anti-rabies vaccine administration. only 22% parents had adequate knowledge regarding child behaviors towards dog. **Conclusion:** There is lack of awareness regarding dog bite and its management among the rural population. It is necessary to update the knowledge among the study population regarding dog bite management.

Key words: Dog behaviors, Dog bite, Misbeliefs and facts, Preventive measures, Rabies

Introduction: Rabies is a lyssavirus infection resulting in acute encephalitis or meningoencephalitis that is virtually always fatal. The disease can be caused by several different rabies and rabies-like viruses. Rabies is an infectious and contagious viral disease. It has been known since the ancient days of 2300 B.C. This lethal virus still exists in almost all parts of the world. Once infected, and left untreated, this disease is 100% fatal.¹ The rabies virus is concentrated in the saliva, mucous membranes and central nervous tissue of a rabid animal. Only humans, and other mammals, can become infected through a cut or scratch from animal with rabies or if the rabies virus comes in contact with the moist tissues of the mouth, nose or eyes.²

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Rabies is a neglected tropical disease that predominantly affects the most vulnerable humans-children living in the most disadvantaged areas of the poorest countries.¹ Many countries have successfully reduced the impact of the disease by tackling the gap between public and animal health through a concerted "one health" approach.² Clinicians world wide need to be aware of rabies and vigilant about the possible exposure of patients to infection because timely prevention is life saving.

Those living in rabies endemic countries, without control measures in dogs and wild life and access to post-exposure prophylaxis, are at greatest risk. Half of the human population world wide lives in countries endemic for canine rabies.³ Children are especially at risk because they are more likely to approach animals without caution, including appear entry tame wild animals, and therefore to be attacked and bitten, especially on the arms and face. In rabies-free countries, all cases of terrestrial rabies are linked with importations rabies-like viruses in bats do not affect a country's rabies free status. Since 1946, 25 cases of human terrestrial rabies have been reported in the United Kingdom, associated with exposures to rabid dogs in countries such as the Philippines, Nigeria, India, and South Africa.⁴

Puppies spend a great deal of time playing, chewing and investigating objects. All of these normal activities involve puppies using their mouths and their needles sharp teeth. When puppies play with people they often bite, chew and mouth on people's hands, limbs and clothing. This type of behavior seems cute when the puppy is 7 week old and the scenario become worsens when the puppies getting old.⁵ Dog bite injuries may cause an umber of physical problems and psychological problems. The children below the age group younger than 10 years represent the high risk group for dog attacks. Studies revealed that boys between the ages of 5 to 9 are bitten five times more by dogs than any other group of people.⁶

Considering the situation, our study was conducted to study awareness to determine the awareness regarding management and preventive measures of dog bite in the urban community 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 March to 30th April 2022 and people of the Tangra Area were included in the study.

Study subjects : Parents of children in the age group of 4 to 14 years residing at the Tangra area of Kolkata who met the inclusion criteria. Informed consent was taken prior to conduct of the study. Total 100 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 : The data collection instrument include semi structured questionnaire to assess the socio-demographic data of the parent. The first part consists socio demographic data of the parents were developed by the researcher which consists age of the parent, relationship with the child, educational status, occupation, monthly income, type of family, religion, age of the child, source of information, previous experience, medical facility nearby, presence of dog in home, first aid box at home. Second part questions regarding management of dog bite, prevention of dog bite, child behaviors towards dog and dog behaviors towards child, beliefs and truth related to dog bite. questions were asked regarding wound care management, food pattern, symptoms of dog bite and rabies. 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 100 participants were included in the study, 64 (64%) were females and rest 46 (46%) were males.

Table 1: Knowledge of parents regarding modes of transmission of rabies (multiple choice question)

Mode of transmission	Number(%)
Bite	100 (100%)
Drinking raw milk of rabid animal	45 (45%)
Scratch	32 (32%)
Licks on broken skin / mucus membrane	15 (15%)
Touching secretions of rabid animal	8 (8%)

Table 1 shows the knowledge of parents regarding modes of transmission of rabies. 100% opined that dog bite is responsible for transmission, 32% opined scratch, 15% opined lick on broken skin/mucous membrane, 45% opined Drinking raw milk of rabid animal and 8% opined touching secretions of rabid animal

Table 2: Approaches adopted by parents following dog bite (multiple choice question)

Different approaches	Number(%)
Wash the wound	76%
Wash the wound > 15 minutes	24%
Wound should be stitched/bandaged before vaccination	66%
Take tetanus vaccination	100%
Go to the hospital/Contact a medical doctor	94%
Get a vaccination	64%
Contact a veterinarian	42%
Report it to the dog owner & ask for rabies vaccination certificate of the dog	52%
Visit a medicine shop	2%
Kill the dog	2%

Table 2 shows various approaches which were opined by the parents after an incidence of dog bite. Majority(76%) of the study subjects had knowledge of immediate washing of the wound, but only 24% opined that wound should be washed more than 15 minutes. 66% told that the wound should be stitched/bandaged before vaccination. All of them mentioned about the need of tetanus vaccination after a bite. 94% opined to visit the hospital/Contact a medical doctor for treatment after dog bite. 42% opined to contact a veterinarian, 52% opined that dog owner should be contacted & ask for rabies vaccination certificate of the dog. 2% each opined that Refer to visit a medicine shop and killing of dog.

Table3: Knowledge of parents regarding number of doses of ARV administration and RIG administration.

No. of doses of ARV	Number(%)
1	2 (2%)
2	10 (10%)
3	48(48%)
4	8 (8%)
5	18 (18%)
Others	12(12%)
No idea	2 (2%)
RIG Administration	
Required	64 (64%)
Not required / no idea	36 (36%)

Table 3 depicts that only 18% parents had knowledge regarding 5 doses of vaccination after dog bite. Only 64% had knowledge regarding RIG administration.

Table 3: Knowledge of parents regarding number of doses of ARV administration and RIG administration.

Site of vaccine administration	Number(%)
Arm / Thigh	24 (24%)
Glutens	18 (18%)
Umbilicus	46 (46%)
No idea	12 (12%)

Table 4 depicts that most of the parents (46%) still believe peri-umbilical area as the site of anti-rabies vaccine administration.

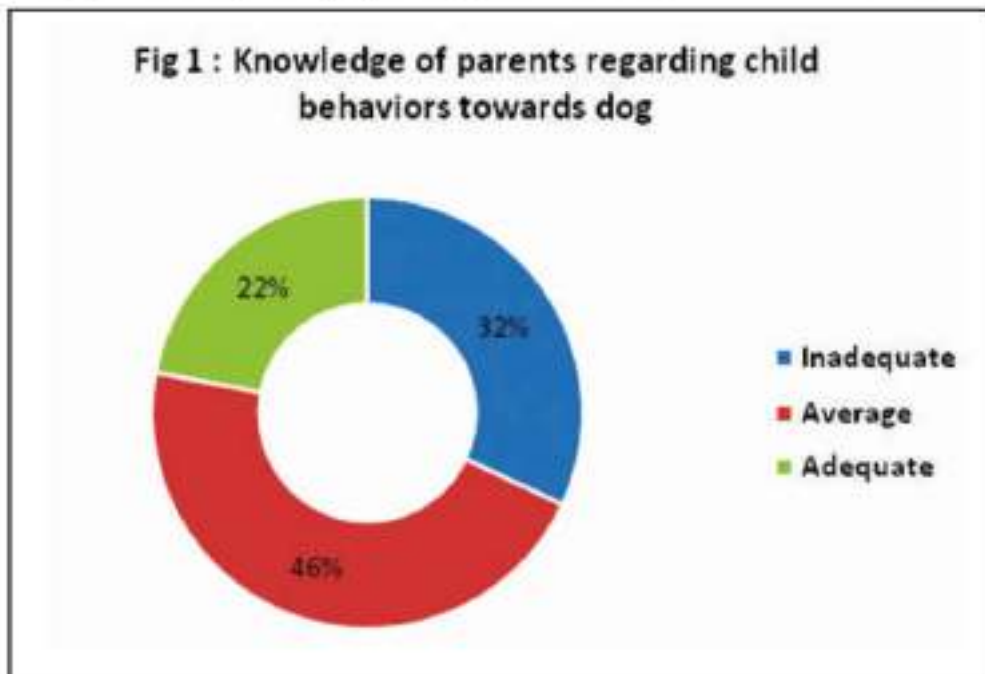


Figure 1 show that only 22% parents had adequate knowledge regarding child behaviors towards dog, 32% had inadequate knowledge and 46% had average knowledge.

Child behaviors towards dog

Children may assume dog as playmate and starts disturbing them. Child may not have any fear of dogs, they may play with the pet dog, and the child will replicate the same to the street dogs which may cause biting. Most bite among the young children will be occurring during the positive interactions, initiated by the child, with familiar dogs which will be occurring indoor un intentionally. In older children, the activities which may provoke the dog mostly unfamiliar to child occurring outside the house premises. Child may do riskier practices like pulling of ears, cheeks and tails , beat with stick. As the child's body size is small, when the child approaches the dog the face will near to the dog's mouth that may lead to accidental occurrence of dog bite.

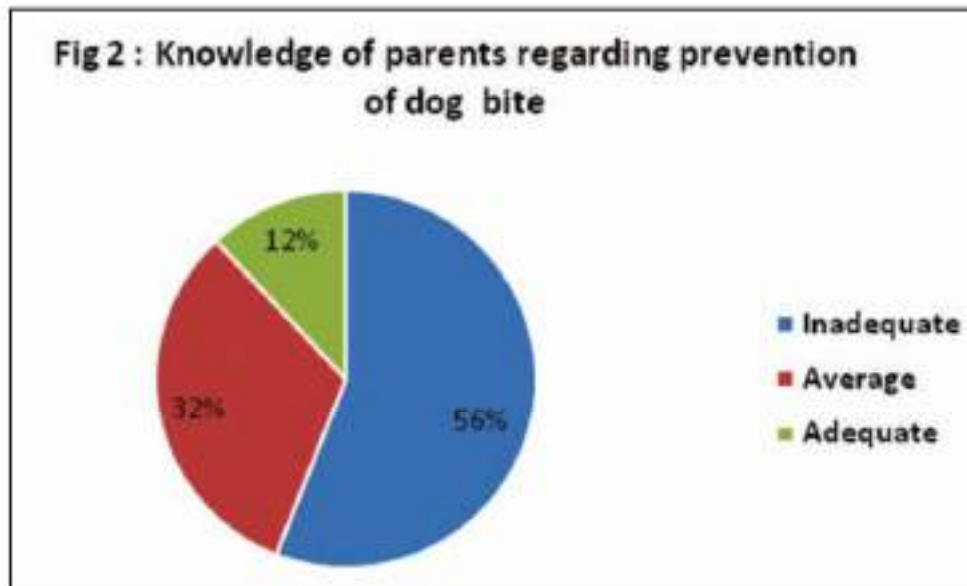


Figure 2 depicts that 32% parents had average knowledge, 56% had inadequate knowledge and only 12% are fully aware about prevention of dog bite.

Prevention of dog bite

Educate the children about how to behave to dog and how to recognize a bite risk situation.

For pet dogs Make the child to familiar the behavior of dog. Parent can carefully supervise all interactions between child and dog.

For strange dogs, the child should stand still posture as a tree. Child should never approach, touch or play with strange dogs. The child should never take steps too fast and the child should be slow and gentle to move from the situation. Make sure that there is no harm from the child to the dog, avoid eye contact with the dog. Never do staring continuously at the dogs. Walk through the corner of the road slowly Hands should be clenched, make sure there is no stone or stick in your hands to harm.

Discussion: Study was conducted for the period of two month i.e 1st March to 30th April 2022 and people of the Tangra Area, Kolkata were included in the study. Total 100 participants were included in the study. 64% were females and rest 46% were males.

The present study revealed that, only 62% of the parents had idea of no chance of survival after development of the disease. Whereas in a study conducted by Chopra D et al⁶ among staff nurses only 10% told that Rabies is not curable. In our study all parents were know that dog is the major source for spread of Rabies in human population which is similar to other studies conducted by Manjunath M et al⁷ & Bhalta et al⁸. Other sources mentioned by parents were cats, monkeys, rats, cattle which is almost similar to study conducted by Malatesh et al⁹. In a study conducted by Joydeep Das¹⁰ 62% teachers did know that dog is the only causative animal, whereas 12% of them said it can be caused by other animals also but 6% had no idea.

Regarding mode of transmission 100% parents responded for the bite by an animal, 32% opined scratch, licks and close contacts were opined by 32% and 15% respectively. In a study by Jehnavi Retal¹¹ among para medical students 73% knew Rabies could be transmitted by animal bites. In the Study by Joydeep Das et al¹⁰ 67% of total respondents has a belief that only bite of a rabid animal can transmit disease while 10% has an idea about various modes of transmission other than bite. In another study by Tiwari H.K. et al¹², 54% of the participants were not aware that rabies could be transmitted through licks and scratches of a rabid animal, 24% of staff believed that rabies could be transmitted through contaminated food or water or between human. The above findings emphasizes the need for health education and awareness regarding modes of transmission and prevention of the disease.

With regard to approaches adopted by parents following dog bite, 76% had knowledge of immediate washing of the wound but the proper method of giving first-aid i.e. initial washing with soap and water. Only 24% of parents were having the knowledge of washing wounds for ≥ 15 minutes. Washing a dog bite wound with soap and water is said to reduce the viral load and mortality by as much as 50% hence first-aid plays an important role for prevention of rabies. "Kar K. et al" conducted a study among nursing students where she found proper method of first-aid was known to only 21.2%. A study by Samantaray A et al¹⁷ among AYUSH doctors showed that 55.2% had knowledge on proper method of first-aid.

All most all the parents in the present study opined that victim has to consult a doctor after bitten by any animal and only 2% opined for killing of the dog.

Regarding vaccination, only 64% parents opined that the victim has to receive vaccine if bitten by animal but most of them did not know the correct number of doses and site of anti rabies vaccination. Only 46% parents have still an idea that ARV is given in peri-umbilical area. Only 24% parents opined vaccination over arm or antero-lateral part of thigh. In a similar study among paramedical students Haldar S R et al¹⁸ 55% responded for deltoid/thigh and 38% for peri-umbilical area.

Only 64% of parents has knowledge about anti-rabies immunoglobulin and pre-exposure prophylaxis which is similar to study findings of Kishore et al.¹⁷ Haldar SR et al¹⁸ who found that only 29% of respondents had the knowledge that both rabies immunoglobulin and anti-rabies vaccine are given after animal bite.

The present study reveal that only 22% parents had adequate knowledge regarding child behaviors towards dog, 32% had inadequate knowledge and 46% had average knowledge. Boys were more frequently exposed to dogs than girls and also possessed less safety knowledge but riskier attitudes, beliefs of invulnerability, and more dangerous self-reported practices with dogs than girls. As children grew older, they reported greater exposure to dogs, but they also held riskier attitudes and beliefs and reported more risky behavior practices with dogs, children with riskier attitudes, beliefs of invulnerability, and those who were more frequently exposed to dogs.¹⁹

The present study depicts that 32% parents had average knowledge, 56% had inadequate knowledge and only 12% are fully aware about prevention of dog bite. The present study findings were supported by Samba M et al on knowledge, attitude and practices about rabies prevention and control in 2014. Only 5% were aware of the need for prompt wound cleansing. Among the respondents 65% knew of dog vaccination to control rabies, only 51% vaccinated their dogs. The study concluded that important knowledge gaps related to factors influencing the prevention and control of rabies.²⁰

Conclusions and recommendations:

Though all parents knew that rabies is fatal and is transmitted by animal bite, the knowledge regarding modes of transmission, correct dosage, site and route of anti-rabies vaccine administration, RIG administration was poor. Parents are having not satisfactory knowledge about the rabies virus regarding the transmission, clinical features and other related issues which is very much important for the prevention of rabies. So this study recommends that curriculum of primary and secondary school should include the chapter on prevention and control of rabies. Parents should also aware themselves regarding rabies prevention and also teach their children. This will help India to eliminate dog-mediated rabies by 2030.

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