



Original Research Article

Community belief, myths, and perceptions about animal bite cases in the urban slum of Chennai, India: A qualitative study

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Abstract: Background: Animal bites are a serious public health concern, with 59,000 rabies-related deaths occurring globally every year, out of which one-third occur in India. Rabies is a fatal zoonotic communicable disease transmitted through animal bites. The high prevalence of rabies deaths in India is due to stray dogs, enduring myths, and traditional beliefs that require community interventions. Hence, this study was conducted to explore the community beliefs and myths regarding rabies prevention and transmission from animal bites in an urban slum and to assess first aid procedures and knowledge. **Materials and methods:** An exploratory qualitative study using Free-listing exercises and Focus Group Discussions (FGDs) was conducted in an urban slum of the Chengalpattu district, Tamil Nadu, in April 2025. Two free listing exercises and three FGDs were conducted with 21 participants. Thematic analysis of the transcripts was done. **Results:** The majority of the participants believed that dogs were the most common cause of rabies (SS score=0.809). Few believed in hospital visits as first-aid measures following animal bites (SS score=0.640). Seven major themes were identified on characteristic features, clinical manifestation, prophylactic therapy, health information and decision making, community well-being, Hindrance, and surveillance. **Conclusion:** The findings indicate the presence of knowledge and awareness on modern medical practices, with existing traditional beliefs and fear of vaccines.

Keywords: Rabies, Myths, Beliefs, Perception, Qualitative

INTRODUCTION

Rabies is a major public health concern, especially in developing countries(1). It is a viral zoonotic disease that causes fatal inflammation of the brain and spinal cord(2) Rabies is transmitted from infected animals such as dogs, bats, foxes, raccoons and other mammals to humans through bites(3). Over 99% of

human rabies deaths are transmitted through dog bites globally(4). Tragically, one person dies from rabies every nine minutes, with children under 15 accounting for 40% of the victims globally.

Across more than 150 countries, there are 59,000 human deaths annually. Despite being a vaccine-

preventable disease, 95% of cases occur in Africa and Asia(5). India accounts for 20,000 estimated deaths annually of global rabies-related deaths(6). Except for the Andaman & Nicobar and Lakshadweep Islands, rabies cases are reported across all states, with around 96% of rabies-related deaths and illnesses linked to dog bites(7).

India has the largest population of unvaccinated stray dogs globally, making them more susceptible to rabies infection.(8) Since rabies is endemic in India, the virus is mainly transmitted through bites and scratches from warm-blooded animals which are carriers.(9) A local infection from a bite may cause redness, swelling, pain, discharge from pus, and sometimes fever along with swelling of lymph nodes(10)

Despite immediate first aid and the administration of anti-rabies vaccine and rabies immunoglobulin, rabies control is hindered by misconceptions, cultural beliefs, and limited healthcare access. Many initially rely on traditional practices(11). Evidence from several studies has shown that myths about rabies transmission, unhealthy wound care practices such as application of turmeric soil herbal extracts and inadequate understanding of disease fatality and appropriate first aid measures(12,13). Health-seeking patterns show lapses in proper wound washing and post-exposure prophylaxis compliance are often influenced by misconceptions, fear of injections and socioeconomic constraints(14)

Engaging communities to enhance rabies awareness and promote vaccination helps in prevention. The availability of human vaccines and immunoglobulins significantly reduces mortality rates(15). This study aims to explore community beliefs, myths, and perceptions to design effective interventions that improve first-aid practices and post-exposure prophylaxis in urban slums.

Materials and methods: This exploratory qualitative study using free-listing exercise and focus group discussions was conducted in an outreach centre of an urban slum in Chennai, Tamil Nadu, India, during April to June 2025. This health centre caters to the urban slum of Kannagi Nagar, located 5 kilometres from Semmencheri Outreach Centre, which is attached to a tertiary care medical college hospital in the Thiruporur block of Chengalpattu district. The ethical approval was obtained from the institutional ethics committee (IHEC-I/3732/25). Residents who have resided in the field practice area for the past six months, and who are ≥ 18 years old, were included with the help of community social leaders and volunteers. Persons unwilling or unable to provide informed consent were excluded. No incentives were provided.

A free listing exercise was conducted with 21 diverse participants, each provided a pen and paper, and asked to list responses to questions related to their knowledge of animal bites with a free-listing tool focused on two domains on animals responsible for rabies transmission, first-aid, and treatment practices for animal bites were free-listed. An interview guide was based on broad open-ended questions, and probes were developed based on perceptions regarding animal bites and findings from free listing exercises. Participants from the free listing exercise, who were vocal in providing answers, were purposively selected for FGD.

To achieve diversity in sampling, at least three FGDs were planned. Informed consent was obtained before the interviews. All three FGD was conducted with both male and female participants aged 18 years and above. As there was saturation after three FGDs, none were conducted further. Participants were divided into three groups. Each FGD had seven participants. Hence, a total of 21 were included in the study.

The interview was conducted in Tamil. With consent, audio-recorded interviews and verbatim notes were taken. Field observations were documented. The FGDs were moderated by a postgraduate researcher trained in qualitative methods, assisted by a note taker. The moderator had prior experience in conducting FGDs in a community setting. No prior relationship existed with the participants before the study. Only the moderator, note-taker, and participants were present at the time of the interview and privacy was maintained by keeping the room closed. Participants were informed about the study's purpose. There was no interference in the selection of the participants, and none of them refused to be a part of the discussion. Confidentiality and anonymity were assured. Consent for participation and audio recording of the FGD was taken. No incentives were provided. Each FGD lasted for a period of about 30 minutes, which was conducted by the moderator. The transcript was prepared depending on the notes of FGD and audio tapes. Manual descriptive thematic analysis of the transcripts was done. Verbatim transcripts were not returned to individual participants for review due to limitations and constraints. On completion, the summarised findings of the interviews were read back to the participants by the moderator to ensure participant validation at the end of each FGD. Codes, subthemes, and theme generation were done from transcripts using standard procedures. Data management and analysis for free listing was done using Microsoft Excel, and FGD data was coded using the Microsoft Word commented feature. The responses were translated and transcribed from Tamil to English within two days, based on the audio records and verbatim notes.

On identification of the codes, themes and categories were generated. Two coders analysed the transcripts independently to enhance reliability. The third researcher reviewed coding inconsistencies and

promoted agreement. Finally, the coding process was done, and a description of the coding tree containing seven major themes with 18 sub-themes was derived.

RESULTS

A total of 21 participated in free-listing. Out of which 45.8% of participants were from the age group of 45 years and above, 62.5% of males, and 50% were educated. Most of the participants mentioned dogs as the most common source of rabies (0.809), followed by cats (0.344), rats (0.280), and monkeys (0.132). A few participants also mentioned insects (ants, mosquitoes) and reptiles (snakes, lizards, centipedes, and worms).

Table 1: Free Listing results for the domain: “Animals causing Rabies”

Item	Frequency (%)	Average Rank	Smith's Salience Score
Dog	90.5	1.37	0.809
Cat	52.4	2.73	0.344
Rat	47.6	2.60	0.280
Monkey	23.8	2.80	0.132
Snake	19.0	2.00	0.150
Scorpion	19.0	4.00	0.085
Graden lizard	9.5	4.00	0.061
Centipede	9.5	5.00	0.036
Fox	9.5	5.00	0.045
Mosquito	9.5	7.50	0.014
Poisonous insects	4.8	2.00	0.024
Rabbit	4.8	5.00	0.010
unknown	4.8	1.00	0.048
Wolf	4.8	6.00	0.014
Blanket worm	4.8	5.00	0.029
Ant	4.8	9.00	0.010
			6
nitor lizard			0
cken			8
hkey			9

First-aid measures practised following animal bites were hospital visits (Smith's salience score= 0.640), vaccination (SS score= 0.387), and irrigation with water (SS score= 0.210). Indigenous practices like the application of herbal extract, turmeric, soil, slaked lime, coconut oil, drawing out poisonous blood from the wound, and avoidance of non-vegetarian food were also reported.

Table 2: Free listing results for the domain “First Aid and Treatment”

Item	Frequency (%)	Average Rank	Smith's Salience Score
Hospital	85.7	2.00	0.640
Vaccine	81.0	2.82	0.387
Water wash	33.3	2.71	0.210
Medicinal plants	28.6	2.50	0.186
Draw blood from the wound	14.3	2.67	0.071
Slaked lime	9.5	2.50	0.060
Unknown	9.5	1.00	0.095
Soap	9.5	1.50	0.086
Tying with tight band	9.5	1.00	0.095
Clean with water	9.5	2.00	0.063
Coconut oil	4.8	2.00	0.036
Covering the wound with cloth	4.8	2.00	0.036
Animal welfare homes	4.8	2.00	0.036
Kill the dog	4.8	1.00	0.048
Avoid non-veg food	4.8	4.00	0.012
Turmeric	4.8	1.00	0.048
Soil on the wound	4.8	4.00	0.012

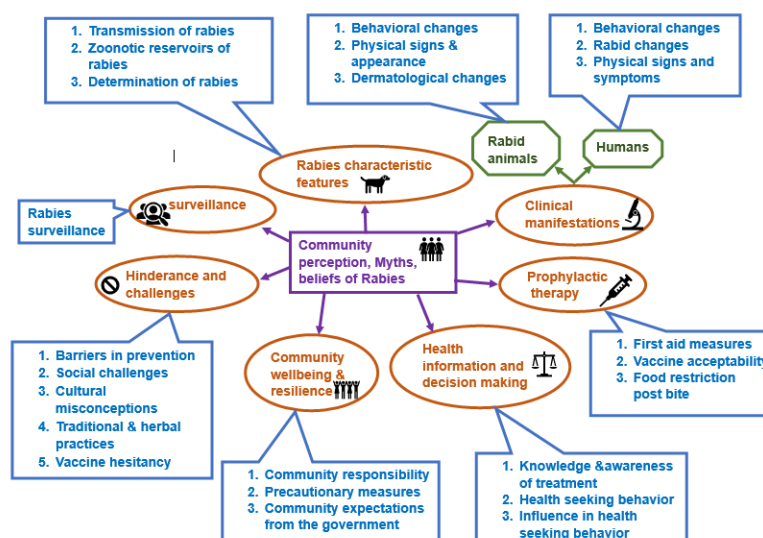
The majority of participants were middle-aged, 41-60 years (61.9%), (76.2%) Females, (71.4%) Hindu and (85.7%) married, (38.1%) were found to have graduated up to high school. Most of them were homemakers (47.6%), and Daily labourers (23.8%). 80.9% had reported a family history of animal bites.

Table 3: Socio-demographic characteristics of participants (n=21)

Socio-demographic characteristics		n (%)
Age (years)	18-24 years	2 (9.5)
	25-44 years	6 (28.6)
	45-60 years	13 (61.9)
Gender	Male	5 (23.8)
	Female	16 (76.2)
Religion	Hindu	15 (71.4)
	Christian	2 (9.5)
	Muslim	4 (19)
Marital status	Married	18 (85.7%)
	unmarried	2 (9.5)
	Widowed	1 (4.8)
Educational status	Illiterate	6 (28.6)
	Primary/Middle school	8 (38.1%)
	High school	5 (23.8%)
	Graduate	2 (9.5%)
Occupational status	Homemaker	10 (47.6%)
	Daily wage labourer	5 (23.8%)
	Small business	3 (14.3%)
	Skilled Worker	2 (9.5%)
	Unemployed	1 (4.8%)
Monthly family income	<5000	7 (33.3%)
	5000-10000	10 (47.6)
	>10000	4 (19.0%)
Type of family	Nuclear	14 (66.7%)
	Joint	7 (33.3%)
Do you own a pet	No	18 (85.7%)
	Yes	3 (14.3%)
History of dog bite in the family	No	12 (57.1%)
	Yes	9 (42.9%)

Focus group discussion

Figure 1: Thematic flow diagram of community beliefs, myths and perceptions on rabies transmission and prevention



Thematic analysis of the transcripts led to the development of seven major themes

Theme 1: Characteristic features of rabies

Disease recognition: Participants consider rabies a serious and life-threatening disease associated with animal bites, particularly from dogs.

"Rabies is a dangerous disease. Mostly they are mad dogs, it causes rabies whenever it bites and the person will die" (participant ID ((PID) 3-FGD 2)

Still, confusion exists between rabies and wound infections:

Immediately after dog bite if we don't clean properly infection will come and spread throughout the body (PID 5-FGD 3)

Casual understanding: Participants attribute rabies to mad or street dogs and some of them think healthy dogs transmit the disease.

"Even if the dog looks normal, it can have rabies inside. We do not know just by looking" (PID 4-FGD 1)

Misconceptions on rabies originating due to poor sanitation, wound infection rather than a specific viral disease

Theme 2: clinical manifestations

Participants describe the local signs and symptoms of classic rabies

Signs and symptoms:

"The bitten area becomes red and swollen, sometimes pus oozes out. It will be very painful" (PID 2-FGD 1)

"The person will fear water. Cannot drink or even look at the water. He will become like the dog barking, biting others" (PID 4-FGD 3)

"High fever, unable to eat or drink, foam will come out from the mouth, then Death occurs"(PID 7-FGD 2)

Misconceptions: Some participants believe that bite wounds heal quickly, indicating no risk.

"The wound will heal in two to three days without problem. The wound becomes worse only if the bitten man has rabies" (PID 4-FGD 1)

Theme 3: Prophylactic therapy

This theme reveals the interaction between medical knowledge and traditional practices

Table 4: Description of thematic categories and participant perceptions.

Category	Participant perceptions
First-aid measures	"Proper cleaning over the bitten area with soap for 15 minutes" (PID 7-FGD 3) "We should wash the wound immediately with running water, then go to the hospital" (PID 6-FGD 2) "Squeeze the wound to remove dirty blood, then wash" (PID 6-FGD 1)
Vaccine acceptability	"Without rabies vaccine, getting cured is impossible. Treatment is necessary" (PID 5-FGD 1) "Nowadays, everyone knows that vaccine must be taken. They are available free at the government hospital" (PID 1-FGD 3) "The injection course should be completed properly; if we stop in between, rabies will recur" (PID 3-FGD 2)
Vaccine hesitancy	"Some say the vaccine itself causes problems like high fever, body pain, that's why people are afraid" (PID 3-FGD 1) "We have to take so many injections. It is difficult to go to hospital because of work" (PID 4-FGD 1)
Food restrictions	"After dog bite we shouldn't eat chicken egg brinjal for at least three months" (PID 1-FGD 1) "Brinjal and potato will cause itching the wound will not heal if we eat these" (PID 5-FGD 1)

	"Non-veg food is completely stopped only simple vegetarian food without spices" (PID 2-FGD 1) "Fish will increase the smell from the wood and delay healing" (PID 6-FGD 3)
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Participants demonstrated awareness of proper wound washing, the importance of vaccination, while significant barriers persist. They believe certain foods delay healing, which are traditional food taboos. Vaccine hesitancy reveals fear of side effects and practical barriers to visiting hospitals conflict with their work.

Theme 4: Health information and decision making

Health information: Participants obtained information on from multiple sources.

"I have learned about rabies from TV health programs and from the health worker who visits our area" (PID 3-FGD 3)

"Elders in the family tell us what to do. They have more experience than doctors sometimes" (PID 5-FGD 1)

My neighbour's son died from a dog bite because they delayed going to the hospital. After seeing that everyone here became more careful" (PID 6-FGD 2)

Family decision making: Healthcare decisions following animal bites often involves family consultation rather than individual action.

"I wanted to go to hospital immediately, but my mother-in-law said to apply turmeric first and see" (PID 1-FGD 1)

"The man of the house decides whether to spend money for hospital. Women cannot take such decisions alone" (PID 5-FGD 3)

Economic consideration: Financial constraints influence health-care seeking.

"If we go to hospital we lose daily wages for small bites we manage at home" (PID 3-FGD 2)

Trust in healthcare providers: Trust varied based on experiences

"The doctor at our government hospital is very good. she explains everything properly" (PID 6-FGD 1)

"The government hospital staff says, the rest of the injection will be wasted and does the cleaning alone. This makes people afraid to go" (PID 4-FGD 3)

Theme 5: community well-being

Stray population concerns: Participants have significant concerns about increasing stray dog populations

"So many street dogs in our area, they fight among themselves, attack people, especially children going to school" (PID 1-FGD 2)

"During garbage collection time, dogs become aggressive; they bite anyone coming near" (PID 4-FGD 3)

Children's vulnerability: Parents express anxiety towards their children's safety

"My daughter was bitten last year while going to school. Now I'm always worried" (PID 6-FGD 2)

"Children play outside and disturb sleeping dogs. They make the dogs angry. They don't understand danger" (PID 5-FGD 3)

Community safety measures: Community attempts towards safety

"The corporation catches dogs sometimes, but they come back and leave it in the same street. No permanent solution" (PID 4-FGD 1)

Theme 6: Hindrance to care seeking

Say participants experience multiple barriers preventing post exposure management

Financial barriers: "Government hospital is free but very far. private clinic is near but they charge 500-1000 rupees for one visit. we are daily labourers. Where to get this money immediately?" (PID 7-FGD 2)

Fear of treatment: "The injections are very painful. My neighbour took it and had severe pain in the stomach for many days" (PID 5-FGD 1)

Traditional VS modern medicine conflict distance and accessibility

"Elders say applying herbal paste is enough for small bites. Doctors say must take injection for every bite, who to believe?" (PID 3-FGD 2)

Distance and accessibility:

"By the time we reach hospital, we have to wait in the queue to see the doctor and get an injection. The whole day is gone" (PID 1-FGD 1)

"No direct bus. The government hospital is 8kilometers away. We have to change buses twice" (PID 6-FGD 2)

Theme 7: surveillance and reporting

Awareness of the reporting mechanism: Participants remain unaware of animal bite reporting systems

"We should report dog bites? I didn't know. we just go to hospital if needed" (PID 1-FGD 2)

"Only if someone dies from rabies, it comes in the newspaper; otherwise, nobody will care about dog bite problems" (PID 6-FGD 3)

Animal control and vaccination programs:

"The corporation van comes sometimes, and catches dogs. But we don't know what they do with them" (PID 2-FGD 3)

"Are they vaccinating the street dogs? We never see anyone doing that in our area" (PID 4-FGD 1)

Perceived Community responsibility:

"Government should do something to protect us" (PID 5-FGD 3)

"Everyone who feeds stray dogs should be responsible for vaccinating them" (PID 2-FGD 1)

DISCUSSION

This qualitative study explored the community's beliefs, myths, and perceptions regarding animal bites and rabies in an urban slum of Kanagi Nagar of Chennai, reveals medical knowledge, traditional practices and significant barriers to post-exposure management(16).

A total of 21 participated in free-listing and FGDs. Out of which 45.8% of participants were from the age group of 45 years and above, 62.5% of males, and 50% were educated. The Free listing exercise conducted in our study reveals that dogs were the common source of rabies, which was followed by cats, rats, and monkeys. This was similar to the study conducted by Tazerji et al(17).

Karmee et al, a qualitative study conducted in urban Berhampur, Odisha, identifies dog as a common source (SSscore=0.879) and first aid measure (SSscore=0.077 and persistence of traditional practices, including herbal applications and food restrictions(16). This was similar to our study, which suggests widespread beliefs about cultural patterns rather than local variations.

S and Solanki et al assessed rabies awareness in an urban area and found that educational level significantly correlated with knowledge, with young, educated participants who had a better understanding of medical concepts, while older participants relied on traditional beliefs (18). In our study, participants had simultaneous beliefs towards medical knowledge while maintaining traditional practices for socio-cultural benefits.

The persistence of traditional wound care practices identified mirrors findings across India. Paul et al in Nepal documented that Traditional and local methods such as application of turmeric powder and shrubs, were used to cure dog bites than seeking medical advice(19). Sivagurunathan et al In urban Tamil Nadu documented that 31% of participants apply traditional substances to the wounds including turmeric 23% herbal paste 15% and slag lime 8% which was similar to our free listing exercises.(8). These traditional practices delay wound healing.

Food taboos following animal bites represent the belief that certain foods, like brinjal, chicken and eggs delay food healing and cause complications, where hot and cold foods affect body processes. Beasley et al conducted a systematic review of traditional medicine and rabies across Asia and Africa, where similar dietary restrictions were noted among multiple countries(20).

The barriers identified in our study include financial constraints, fear of injection, loss of time due to work and the distance to healthcare facilities. Debnath et al in New Delhi, India reported that dog bite victims delay seeking post-exposure, economic constraints, Lack of awareness, cultural beliefs and fear of side effects as barriers and distance to healthcare facilities acts as a barrier(21). Family decision-making to seek immediate care helps to reduce consequences on post-exposure prophylaxis effectiveness.

The participants' anxiety is increasing due to the high stray dog population. This aligns with the study conducted by Gill et al, which revealed an increased stray dog population in Punjab.(22). India estimated 59 million stray dogs, which represents global south overpopulation. Hence, vaccination and sterilization programs remains limited.(23). This highlights the gap between national rabies elimination goals and implementation.

Overall, the findings of biomedical knowledge about rabies, behaviour changes are constrained by cultural practices, socioeconomic vulnerabilities, gender decision-making and health system barriers. Addressing public rabies prevention requires community-centred centered culturally sensitive interventions, integration with accessible health services and effective stray dog control measures.

Limitations: Our study was conducted in a single urban slum, which limits the generalizability of the findings to other settings. Responses during focus group discussions could have been influenced by social disability.

Conclusion: The study reveals that communities in urban slums possess awareness of rabies as a fatal disease and recognise dog bites as the primary source of transmission. Effective rabies prevention in urban

slums requires awareness, culturally appropriate behaviour change communication, and involvement of community influencers and elders. Strengthening the engagement of healthcare workers and improving accessibility for rabies vaccines and wound care services are essential. Stray dog vaccination, sterilization programs, and community awareness of the animal bite reporting systems are essential to achieve rabies control and elimination.

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