

Perceptions and Challenges of Health Personnel in Managing Animal Bite Cases at a Rural Health Training Centre (RHTC) of Medical College in Ahmedabad: A Qualitative Study

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Abstract:

Introduction: Animal bite in human is a public health concern in India. Prompt reporting followed by wound care and vaccination are essential to avoid rabies. Perception of service provider towards treatment contributes an important role for prevention against rabies. **Objectives:** To explore the perception and challenges faced by health personnel in animal bite cases management **Methods:** A qualitative study was conducted at the RHTC of medical college in Ahmedabad. Data were collected through Focus Group Discussions (FGDs) of ASHAs and Key Informants Interviews (KII) with service providers (3 Medical Officers (MOs), 1 staff nurse, 1 pharmacist, and 2 support staff). Data were analysed thematically. Ethical approval and informed consent were obtained. **Results:** Service providers' KIIs showed that MOs were unclear about classification of animal bites due to a lack of formal/updated training. Immunoglobulins were the only ARV-related logistics not available at facility. No system in place to monitor cases of animal bites. ASHA's FGD shared that community still continues to treat wounds with traditional remedies like chhikni, turmeric etc., and also take vow due to belief. The local authority isn't doing enough to address stray dog problem and recent surge in dog bite incidents reported. ASHAs knew importance of ARV, but having a partial knowledge of its schedule. They did not receive any formal training on managing animal bites, despite ASHA's were ready to learn more about it. **Conclusion:** The study highlighted inadequacies in the management of animal bites, such as a lack of resources, misunderstandings in the community and insufficient staff training.

Keywords: Animal bite management, Challenges, Perception, Qualitative study, Service providers

Introduction:

Rabies is one of the oldest zoonotic diseases, in which patient suffers from painful spasms with fatal consequences. The Integrated Diseases Surveillance Program of Govt. of India reports approximately 6-7 Million animal bites each year.^[1] Globally many countries have achieved rabies elimination and there is

Global call for rabies elimination i.e., “Rabies: Zero by 2030”. National Rabies Control Program (NRCP) was launched by Ministry of Health and Family Welfare, Govt. of India to prevent human deaths due to rabies. The strategies of the program include capacity building of health professionals on appropriate animal bite management.^[1] The community is still not adequately

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aware of rabies and its consequences if not managed appropriately.^[2] The most crucial steps in preventing rabies are early reporting, wound care and timely post exposure prophylaxis. Noncompliance with the ARV is one of the most serious concerns.^[3] Another major challenge is irregular supply of ARV and immunoglobulin at Primary Health Centres (PHCs) in rural India.^[4] There are many myths related to wound care, such as applications of home remedies like turmeric/chillies on biting wound. In such scenario, health personals attitude towards animal bite management plays an important role in prevention of rabies.^[5] Community health workers like ASHA, as part of the same community can contribute in rabies control.

Present study was planned with the objective to explore the perception and challenges faced by service providers in animal bite cases management.

Methods:

A qualitative study was conducted at a PHC located in Kalol taluka of Gandhinagar district which is also a RHTC of medical college. The study was conducted between May to December 2023. The study participants were service providers mainly MOs, staff nurse, pharmacist, support staff and ASHA workers at selected health facility.

Data Collection and analysis: A qualitative methods such as KIIs of service providers and FGDs of ASHAs were conducted to explore their perception and challenges in animal bite cases management. Total seven KIIs were conducted and their perceptions and challenges were identified. Framework for themes and sub themes was prepared for thematic/interview guide and responses generated during KII were coded manually. Themes identified were mainly infrastructure including human resource (1), operational (2) and administrative issues (3). Physical verification of infrastructure at health facility was also carried out by the investigator as per checklist. KIIs and FGDs were conducted using an interviewer guides and checklists prepared by investigators through literature review and

with the help of expert consultation. These guides and checklists were validated for contents and face validation during validation workshop.

Two FGDs were conducted (16 ASHAs participated till the information was saturated) and each FGD had eight participants with duration of 40-45 minutes to assess their perceptions about management of animal bite cases. Responses of the participants were recorded manually as well as by audio recorder with due written consent of the participants. The audio recordings were transcribed verbatim in Gujarati, which was then translated into English using Google Translate. Data were analysed thematically and categorized as per sub theme emerged and responses were noted in field notes and thematic analysis was done manually.

Ethical Consideration: Study was conducted after approval from the Institutional Ethics Committee (ECR/404/nst/Gj/2013/RR-20). Informed written consent was obtained from all study participants.

Results:

Overall, a total of seven KIIs of service providers and two FGDs of ASHAs were conducted to explore the perception, practice and challenges in management of animal bite cases.

Key Informant Interviews (KIIs): Total seven KIIs were conducted among services providers working at RHTC having different work profile and experience. (Table 1) Their perception and challenges were categorized into three themes (1) Infrastructure (including human resource) (2) Operational and (3) Administrative.

Infrastructure: It was observed that Information, Education and Communication (IEC) materials, category wise animal bite management chart was not available, signages were not displayed appropriately places and simple wash basin marked as wound wash area which was not convenient specially for lower limb animal bite cases. Only gloves were used during wound dressing for personal protections by staff. Animal bite

Table 1: Profile of Service Providers/ Key Informants at RHTC (N=7)

Category	Age (Years)	Gender	Experience (Years)	NRCP Training Status	Remark
1. Medical officer (MBBS)	50	Male	27	Yes	Formally trained 9 years back
2. Medical officer (MBBS)	25	Male	1 month	No	Recently joined as MO
3. Medical officer (AYUSH)	39	Female	15	Yes	Formally trained 2 years back
4. Staff nurse	33	Male	8	Yes	Formally trained 2023
5. Pharmacist	31	Male	9	No	Formally trained
6. Support staff I	45	Female	10	No	Informally trained
7. Support staff II	40	Female	7	No	Informally trained

Table 2: Perception and Challenges of Service Providers at RHTC (N=7)

Themes	Sub-themes	Responses/codes
1. Infrastructure & Human Resource	Human resource	Staff available round the clock. Management during OPD hours and working days only. Vaccine not given throughout the day. MOs inadequate knowledge of bite categorization.
	IEC material	Only one signage. Not displayed appropriately. Pamphlets not available. Category chart not displayed.
2. Operational	Persona Protective Equipments (PPEs)	Using only gloves. No perceived need of further PPE.
	Designated wound wash area	Simple basin available. Inconvenient to use for victim.
	Vaccine & other logistic	ARV available but vial wastage seen. Cold chain issues observed. TT stock out for months.
	Referral	Cat III cases to higher centres.
3. Administrative	Follow up of cases	No established follow up mechanism. Missed follow up due to incorrect contact details. Migration & travelling main reasons for loss to follow up.
	Social issues and beliefs	Lack of perceive need of all scheduled doses. Superstitions (Hadhkaimata badha) widely prevalent in community.
	Reporting	Pharmacist on IHIP portal daily. Post OPD data missing.
	Supervision	Lack of structured supervision.
	Training	Lack formal /updated training. All perceived need of training.

management facility was available only on working days more so during OPD hours. Wound management was not supervised by health staff. Service providers except MOs, didnt aware about correct duration of wound wash. MOs were not clear in categorization of animal bites due to lack of proper formal training or refresher training.

Operational: It was found that all logistics related to ARV except Immunoglobulins were available at PHC. There was no any established mechanism for follow up of animal bite cases. Many patients misplace the case paper and are unaware of need of further vaccination. Social issue and belief related to dog bite is widely seen

in community. Many cases are missed follow-up due to incorrect contact details. More awareness in the community is required regarding need of ARV.

Administrative: It was observed that no structured supervision of dog bite cases. Pharmacist doing reporting in Integrated Health Information Platform (IHIP) but post Out Patient Department (OPD) data was missed. All staff of PHC including MOs perceived need of refresher training. (Table 2)

Focus Group Discussion (FGD): ASHAs, being the front-line health workers are the key informant in spreading awareness about cause, mode of transmission and prevention. As per the thematic guidelines identified theme/s were including their basic concepts about rabies, preferences and practices of animal bite management at home by the community and ASHAs, experiences of animal bite, handling of biting animal, pet vaccination, perception of community about ARV compliance, their experiences of animal bite and death due to rabies, status of training and finally their suggestions.

It was observed that ASHAs did not receive any formal training related to animal bite management but had read about rabies by themselves through their module/s. All ASHA had good understanding of rabies, referred locally as “hadkava”. They know that it is caused by bite of rabid dog and rabies can be prevented by vaccine, prompt local wound management and a bit about first Aid. Whenever, they see cases of dog bite, all of them always advice to first to go nearest health facility and take the tetanus injection along with rabies vaccine (though less informed about exact schedule details), one of them shared that they also take follow up about vaccination from dog bite cases. According to them, now a days community is aware about urgency of dog bite management and usually they visit health facility, but still many victims after the bite apply home-based remedies such as tobacco snuff, turmeric, chilli powder etc. over the wound and many believes in keeping badha of Hadkaimata along with vaccination. Pet vaccination practice is seen only among educated owners. Overall,

they stated that there is menace of stray dogs in community through the year. Biting animal is mostly dog stated by all and two of the them also narrated that if dog appears rabid it is either driven away from the area or if it bites many then it is killed. Action taken by local people is informing local authority (municipalities) to take away and sterilized and will send back to same locality. They also reported the increase in dog bite incidents in the community, emphasizing the need for awareness, vaccination of dogs, and dispelling myths. All ASHAs perceived need of training as they had not received any training in animal bite management. (Table 3)

Some verbatim by ASHA quoted below:

- *“When dog bites and if it is not cleaned, it gets infested with worms can leads to rabies.”*
- *“When rabid dog bites any human or animal and if vaccine is not taken, it causes rabies.”*
- *“Rabid dog is running here and there constantly, in direction of wind”*
- *“A rumour would spread in the village if it was discovered that the dog had rabies”*
- *“If you pour water on the dog, it will run away and the dog will die after three and half days.”*
- *“When a dog bites, we apply the snuff on the wound, as well as tobacco, use home remedies first, wereferred them to Rancharda, sometime also put turmeric milko to the wound”*
- *“First take vow of hadkaimata badha that they will not eat rice for 7 or 11 days, then go for vaccination.”*
- *“We had an aged lady who was bitten by a simple dog, after 6 months the germs spread in her body, Snuff was applied on the wound when she was bitten. Tried lots of different treatment but the germs had spread in all of her body. She was died after that.”*
- *“If injection not taken, then it will happen even after 6-7 years. Within 3 years also.”*

Table 3: Community Practices and Perceptions of ASHA for Animal Bite Management (N=16)

Themes	Sub-themes	Response/s
1. Basics of Rabies	Disease and cause	Aware of Rabies with local term Hadakava, Caused by rabid dog bite (16)
	Transmission	by dog bite (16); by other animals biting also (cat, buffalo); (3); Contact of saliva/licks of rabid dog (1);
	Symptoms/signs - human	Biting others (1); Fear of water (2); Runs arounds when hears loud noise (2); Shivering (1); Unable to hold glass (1);
	Symptoms/signs - animal	Bites anyone who comes across (12); Running constantly in direction of wind (3); Drooling of saliva (3); Fear of water (1); Die within 3-4days (4)
	Preventive measures	Vaccine (15); Wash wound with water and then go to the hospital for injection (13); Application of chhikani (snuff) or tobacco (2)
2. Animal bite perceptions	Vulnerable people	Children, field workers, strangers, morning walkers
	Biting time (time & place)	perceived as vulnerable Throughout the year, more in winters (16); When dog have puppies (3); Anytime during day (2); Streets and field area (6)
	Biting animals	Stray dog (16); sometime pet dogs (10)
3. Animal bite management practices	Usual line of action of ASHA	Advise patient to go nearest health centre (16); Take TT injection (1)
	Community preference	Usually go to health facility (3); Apply home remedies such as turmeric/milk/ chhikani (snuff) (2); Also goes to traditional healers, first keep badha of hadkaimata, then go for vaccination (12)
	Wound manage locally	Apply snuff (5); Cleaning with Dettol or water (2); Use turmeric or chili (3)
4. Handling of biting animal	Community and local authority	Community beats/kills biting dogs, local authorities capture and sterilize the dog
5. Pet Vaccination	Belief	Pet dogs vaccinated (16); Depends education level of pet dog owner (1)
	Practice	Pet dogs vaccinated but not stray dogs (16)
6. Community Perception for ARV compliance	Compliance	If vaccine is not taken, may lead to rabies even after 6-7 years.
	Challenges	Uneducated parents (2); Lack of awareness (2); Superstitions (4); Lack of perceived need of vaccine (1); Belief in traditional practices (hadkaimata badha)
7. Animal bite experiences	Recent cases/death	Surge dog bite incidents (16); Cases reporting at PHC increased (3)
8. Training status	Training	Formal training for animal bite management not received and perceived need of training (16)
9. Suggestions	For community	Community awareness (4); Dog vaccination (2); Prevention of dog bite incidents (2); Dispel myths and superstitions through awareness (1)
	For health system	Formal training of ASHA rabies program (2); Encourage vaccine compliance (2); Discover treatment for rabies (1)

*Figure in parenthesis indicate no. of responses by participants

- *“If there is little blood coming out, do not get the vaccine. Only if there is a lot of blood, then go for it.”*
- *“Previously 14 doses were given but now it is good that only 3-4 doses are required”*

Discussion:

Treatment of dog bite cases in rabies endemic countries like India needs to be initiated immediately since all animal bites are considered from suspected rabid animals, people residing in rural area are more at risk of animal bite. Health care providers at first level of contact should be competent enough to provide timely management of animal bite cases. Community engagement for prevention of animal bite cases is crucial and to explore the perception of community, ASHAs are the best key informants as they are the part of that community. This study investigated that how service providers perceived and deal with the situations of animal bite.

In the current study, all health personnel up to the level of ASHA had heard of rabies as a disease and thought it to be a fatal disease and spread by dog bite and some also mentioned biting by other animals like cat and buffaloes. However, only one participant was aware that rabies could be transmitted through licks of a rabid dog. A similar finding was obtained in a study conducted in rural area of Eastern India by Dinesh P Sahu et al.^[6] and in a multi-centric study in India^[7] and study in rural Karnataka.^[8] Also, one research among public health personnel in Vietnam revealed insufficient awareness of the potential risk by licks/scratches of rabid animals.^[9]

KIIs of service providers revealed that MOs were unclear in their categorization of animal bites due to a lack of appropriate formal training or refresher training. All logistics related to ARV was available except Immunoglobulins (RIG), despite the fact the provision of RIG at all health facilities under the national program. Patients belong to category III bite have to visit secondary or tertiary care facilities as RIG are not available at PHCs leading to poor compliance. Sambo M

et al.^[10] and Patil et al.^[11] show that non-availability of ARV and RIG in PHC compels the patients to go to the higher centres which ultimately cause the delay in the treatment. In this study it was observed that there is no formal system in place to investigate reports of animal bites at the centre. Many people lose the case paper and don't realize they need to get more shots. Due to inaccurate contact information or disregard for follow-up instructions, many cases are overlooked and loss to follow up occurs.

The WHO states that following rabies virus exposure, wounds must be immediately cleaned, flushed for at least 15 minutes with soap and water or just water, and disinfected with antiviral agents.^[12] This study showed non-availability of designated wound washing area, IEC material, proper display of IEC and animal bite category chart at health facility. In a multicentric study, it was discovered that even the practice of wound washing at health centre, which is a crucial component of animal bite management, was only practiced at one of the six centres.^[13] Animal bite management was carried out only during OPD hours and working days and ARV also not provided 24*7 at health centre which may lead to delayed treatment as patients have to wait for next day opening of health facility. Study by Joseph et al. shows similar results that inability to come early for vaccination included work related barriers, anti-rabies clinic being closed on Sundays/national holidays and unawareness about timely PEP.^[14] Also, a study conducted in Himachal Pradesh by Dhiman AK shows that more than two third of the patients came 24 hours after the dog bite for the treatment. Distance of the health centre from the house of the victim is an important factor for delay in the treatment. During this time patients use home remedies or go to traditional healers.^[5]

It is very common to see or hear practices such as applying certain irritants to the local wound site or not washing the site after an animal bite in country like India. These practices are believed to help contain the virus and

prevent its spread. From the interviews in current study, it was found that social issues and belief regarding dog bite is widely prevalent in the community. Dog bite patients used the home remedies like application of snuff, use of turmeric or chili on wound before coming to the hospital and keep beliefs like Hadkai Maata baadha and some goes to traditional healers. Along with the same reporting from some other national and international studies^[15,16], studies by Jain et al.^[17] and Salve et al.^[18] also demonstrated a high prevalence of such methods in Muradnagar and at a PHC in Haryana, respectively. With this belief in mind, they chose not to seek appropriate medical advice.^[15-18] However, they were not aware of the potential for infection due to irritation of such applicants. This demonstrates once more how a lack of education is a significant contributing factor to vaccine delays. Study by Bhargawa et al. found the similar findings that patients applied home remedies which have no benefit at all, it causes harm only.^[19] One such study also shows that traditional healers are very famous in the villages because they are easily accessible and give the cost-effective treatment.^[5]

In present study, health care providers revealed that among many patients lack of perceive need of all the doses after taking first dose. Study conducted by Patil et al. shows that 21 % patients did not report to health facility after first dose.^[11] Similar finding observed in study by Mahendra BJ et al.^[20]

During FGD, ASHA revealed that stray dogs are not receiving vaccinations, but pet dog owners' educational level affects their pet's vaccination status. Additionally, they noted the rise in dog bites in the neighbourhood, highlighting the importance of raising awareness, vaccinating dogs, and busting myths. Community Awareness is required to strengthens regarding need of ARV. Although one might expect ASHA to be trained in animal bite management, this study shows that none of them had received formal training and having a partial knowledge regarding vaccination schedule. Similar finding was also observed in study conducted in western

India by Tiwari et al.^[21] This indicates the need of refresher/ updated training for all staff of PHC including ASHA at the field level.

Conclusions:

This study identifies inadequacies in the management of animal bites, such as a lack of resources, misunderstandings in the community and insufficient staff training. Effective rabies prevention and improved public health outcomes depend on addressing these through focused training, greater resources, and increased public knowledge.

Recommendations:

Public awareness campaigns should be carried out on the importance of early reporting of animal bites, proper wounds care, ARV full compliance and pet vaccinations. Health facilities must have easy access to all required resources to prevent any treatment delays. Services providers and ASHA should get regular training/updates on the anti-rabies program.

Limitations:

This is facility based qualitative study and due to small, non-random samples, the findings may not be representative of a larger population, limiting their generaliz ability. Though all the investigator/s were Gujarati doctors. Google translator was used to translate Gujarati to English.

Declaration

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Conflict of Interest: Nil

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References:

1. National Rabies Control Programme. National guidelines for rabies prophylaxis. New Delhi: National Centre for Disease Control, Directorate General of Health Services, Ministry of Health and

- Family Welfare, Government of India; 2024 [cited 2025 May 24].ncdc.mohfw.gov.in/wp-content/uploads/2024/04/National-Guidelines-for-Rabies-Prophylaxis.pdf
2. Sekhon AS, Singh A, Kaur P, Gupta S. Misconceptions and myths in the management of animal bite cases. *Indian J Community Med.* 2002 Jan-Mar;27(1):9-11.
 3. Shankaraiah RH, Rajashekar RA, Veena V, Hanumanthaiah AN. Compliance to anti-rabies vaccination in post-exposure prophylaxis. *Indian J Public Health.* 2015;59(1):58-60.
 4. Sudarshan MK, Haradanhalli RS. Facilities and services of postexposure prophylaxis in anti-rabies clinics: A national assessment in India. *Indian J Public Health.* 2019 Sep;63(Supplement):S26-S30. doi: 10.4103/ijph.IJPH_367_19. PMID: 31603088.
 5. Dhiman AK, Thakur A, Mazta SR. Treatment seeking behavior of the dog bite patients in Himachal Pradesh, India: a qualitative study. *Int J Community Med Public Health.* 2016;3:2064-9.
 6. Sahu DP, Ps P, Bhatia V, Singh AK. Anti-Rabies Vaccine Compliance and Knowledge of Community Health Worker Regarding Animal Bite Management in Rural Area of Eastern India. *Cureus.* 2021 Mar 31;13(3):e14229.
 7. Sudarshan MK, Madhusudana SN, Mahendra BJ, Rao NS, Ashwath Narayana DH, Abdul Rahman S, et al. Assessing the burden of human rabies in India: Results of a national multicenter epidemiological survey. *Int J Infect Dis* 2007;11:29-35.
 8. Anandaraj R, Balu PS, Anandaraj R. Compliance to anti-rabies vaccine and animal bite management practices in a rural area of Davangere, Karnataka, India. *Int J Community Med Public Health.* 2016;3(1):170-3. doi:10.18203/2394-6040.ijcmph20151556.
 9. Nguyen AK, Nguyen HT, Pham TN, Hoang TV, Olowokure B. Awareness of rabies prevention and control measures among public health workers in Northern Vietnam. *Public Health.* 2015 Dec;129(12):1591-6. doi: 10.1016/j.puhe.2015.07.019. Epub 2015 Aug 13. PMID: 26278473.
 10. Sambo M, Lembo T, Cleaveland S, Ferguson HM, Sikana L, Simon C, Urassa H, Hampson K. Knowledge, attitudes and practices (KAP) about rabies prevention and control: a community survey in Tanzania. *PLoS Negl Trop Dis.* 2014 Dec 4;8(12):e3310. doi: 10.1371/journal.pntd.0003310. PMID: 25473834; PMCID: PMC4256472.
 11. Patil AR, Bawa MS, Shirpurkar MB, Tambe MP. A retrospective epidemiological study of delay for updated Thai red cross intradermal anti-rabies vaccination schedule amongst animal bite cases attending ARV clinic at a tertiary care centre. *Int J Community Med Public Health.* 2015;2(1):19-24.
 12. World Health Organization. WHO expert consultation on rabies. Second Report Geneva, 2013. WHO Technical Report Series, No. (982). Geneva, Switzerland: WHO; 2013.
 13. Ichhpujani RL, Mala C, Veena M, Singh J, Bhardwaj M, Bhattacharya D, Pattanaik SK, Balakrishnan N, Reddy AK, Samnpath G, Gandhi N, Nagar SS, Shiv L. Epidemiology of animal bites and rabies cases in India. A multicentric study. *J Commun Dis.* 2008 Mar;40(1):27-36. PMID: 19127666.
 14. Joseph J, N S, Khan AM, Rajoura OP. Determinants of delay in initiating post-exposure prophylaxis for rabies prevention among animal bite cases: hospital-based study. *Vaccine.* 2013 Dec 17;32(1):74-7. doi: 10.1016/j.vaccine.2013.10.067. Epub 2013 Nov 1. PMID: 24188758.
 15. Li GW, Chen QG, Qu ZY, Xia Y, Lam A, et al. Epidemiological characteristics of human rabies in Henan province in China from 2005 to 2013. *J Venom Anim Toxins Incl Trop Dis.* 2015;21:34.
 16. Ren J, Gong Z, Chen E, Lin J, Lv H, et al. Human rabies in Zhejiang Province, China. *Int J Infect Dis.* 2015;38:77-82.
 17. Jain P, Jain G. Study of general awareness, attitude, behavior, and practice study on dog bites and its management in the context of prevention of rabies among the victims of dog bite attending the opd services of CHC Muradnagar. *J Fam Med Primary Care* 2014;3:355-8.
 18. Salve H, Rizwan SA, Kant S, Rai SK, Kharya P, et al. Kumar S. Pre-treatment practices among patients attending an Animal Bite Management clinic at a primary health centre in Haryana, North India. *Trop Doct.* 2015;45:123-5.
 19. Bhargava A, Deshmukh R, Ghosh TK, Goswami A, Prasannaraj P, Marfatia SP, et al. Profile and characteristics of animal bites in India. *J Assoc Physicians India.* 1996;44(1):37-8.
 20. Mahendra BJ, Harish BR, Vinay M. A study of factors influencing compliance to IDRV at anti-rabies clinic of Mandya Institute of Medical Sciences, Mandya. *APCRI J.* 2009;11:18-20.
 21. Tiwari HK, Vanak AT, O'Dea M, Robertson ID. Knowledge, attitudes and practices towards dog-bite related rabies in para-medical staff at rural primary health centres in Baramati, western India. *PLoS One.* 2018 Nov 16;13(11): e0207025. doi: 10.1371/journal.pone.0207025. PMID: 30444871; PMCID: PMC6239288.