

# COMPLIANCE TOWARDS ANTI RABIES VACCINE AND ITS DETERMINANTS AMONG PEOPLE EXPOSED TO ANIMAL BITE IN SULUR BLOCK OF COIMBATORE DISTRICT: A CROSS SECTIONAL STUDY

*Shanmuga Sundaram <sup>(1)</sup>, Aruna <sup>(1)</sup>, Somasundaram A <sup>(1)</sup>, Sudharshini Subramaniam <sup>(2)</sup>*

(1) - Directorate of Public Health & Preventive Medicine, Chennai

(2) - Institute of Community Medicine, Madras Medical College

## Abstract

**BACKGROUND:** Globally Rabies accounts for 59000 deaths per year with Africa and Asia contributing to 95% of the deaths. Sulur block of Coimbatore District reports an average of 5-10 animal bites per day which seem to be higher in the district. This study focuses on understanding the compliance to Anti Rabies Vaccination (ARV) regimen and the determining factors among people exposed to animal bite approaching the PHC's or GH of this block.

**METHODS:** A cross sectional study was done among people exposed to animal bite who visited the government facilities in Sulur block during October -2021 to March-2022. Using simple random sampling method, a sample of 155 participants was selected from the sampling frame. Data collection was done by trained health care staff through face-to-face interviews using semi-structured questionnaire after obtaining consent. People exposed to animal bites who completed the recommended anti-rabies vaccination course (0,3,7,28) irrespective of date appropriateness were considered compliant.

**RESULTS:** Most of the study participants were men, and dog bite was the most common animal exposure. Only 54.5% had received their 1st dose of ARV on the same day of animal exposure. Only 60% had completed all 4 doses of vaccination irrespective of date appropriateness. The most common reason cited for delay in 1st dose was low risk perception (25%) followed by unavailability of ARV in the hospital (19.4%). The most common reasons for noncompliance to completion of schedule was low risk perception (14.2%).

**CONCLUSION:** This study signifies the need for increasing awareness about the disease and post-exposure prophylaxis to rabies, to improve compliance.

**KEYWORDS:** Anti-Rabies Vaccination, Compliance, Animal Bite.

## INTRODUCTION

Globally Rabies accounts for 59000 deaths per year with Africa and Asia contributing to 95% of the deaths.<sup>1</sup> The frequent people exposed to animal bites are reported to be in the age group of 5-14 years globally. India accounts for 36% of the world's rabies deaths, causing approximately around 18,000-20 000 deaths every year.<sup>2</sup> Tamil Nadu, the southern state of India had reported 31 deaths due to Rabies in the state-run medical colleges for the year 2018.<sup>3</sup> Rabies is a fatal but Vaccine preventable disease. In India 97 percentage of the Rabies transmission happens through dog bites.<sup>2</sup> India is a signatory to the WHO's drive towards zero deaths from dog-mediated rabies by 2030.<sup>4</sup> To achieve this target, India has formulated 'National guidelines for Rabies prophylaxis', to ensure uniform practices in post exposure prophylaxis (PEP) across the country. As per the guidelines every animal bite is considered as a potential rabid animal bite and prophylaxis should be started immediately. PEP includes wound toileting, active immunization with Anti Rabies vaccine (ARV) and passive immunization with Rabies Immunoglobulin. ARV should be administered for all animal bite people exposed to animal bites with Category 2 and Category 3 bites. Category 2 includes any wound in

skin without bleeding & Category 3 includes all wounds with bleeding and any mucous membrane involvement. ARV schedule is a multidose schedule requiring multiple visits to be made by the patients.<sup>5</sup>

Under National Rabies Control Programme, the regimen approved by Drug Controller General of India is the updated Thai Red cross regimen which involves injecting reconstituted vaccine on two sites with 0.1ml per site intradermally over the deltoid region on days 0,3,7 and 28. PEP should be instituted immediately, and the complete course of the ARV schedule should be adhered to ensure complete protection against Rabies. However, there are studies which have shown non-adherence to the regimen for various reasons.<sup>6-12</sup>

Coimbatore district which is the 2nd largest district in Tamil Nadu with literacy rate of 89.2% which is



Please Scan this QR Code to

View this Article Online

Article ID: 2022:02:03:08

Corresponding Author : Sudharshini Subramaniam

e-mail: sudharshinisubramaniam.90@gmail.com

higher than the national average as per 2011 census of India. Sular block of Coimbatore district is in the eastern end of the district consisting of 41 revenue villages.

The block is catered by 4 Primary Health Centres and 1 Taluk headquarters hospital (referred to as Sular GH). Sular block of Coimbatore District reports an average of 5-10 animal bites per day which seem to be higher in the district. This study focuses on understanding the compliance to ARV regimen among people exposed to animal bite approaching the PHC's or GH of this block. This study also focusses on the factors determining the compliance to ARV regimen among the study participants. This study will give an insight on the actual compliance and help policy makers in designing strategies to address the non-compliance. The literature reviewed found that there is lack of information on compliance to ARV coming from rural Tamil Nadu. Hence this necessitates the need for understanding the situation in Rural Tamil Nadu.

## OBJECTIVES

### Primary objective

- To estimate the proportion of people exposed to animal bite who are compliant to anti-rabies vaccine regimen in Sular block of Coimbatore district.
- To find the factors determining the compliance to anti-rabies vaccine among study participants.

## METHODOLOGY

**STUDY DESIGN :** Cross sectional study

**STUDY POPULATION :** All people exposed to animal bite who visited the four PHC's and GH of Sular block in the last 6 months (October -2021 to March-2022).

**INCLUSION CRITERIA :** All people exposed to animal bite who visited the four PHC's and GH of Sular block in the last 6 months (October -2021 to March-2022).

### EXCLUSION CRITERIA :

- Patients who do not give consent to participate in the study
- Patients who could not be contacted even after 3 attempts in different period
- Participants whose contact details are incorrect or not available
- Participants who are not residents of Sular block

**STUDY AREA :** Public health institutions in Sular block of Coimbatore district include 4 PHCs and 1 secondary level hospital which provides anti rabies vaccine services 24\*7 free of cost. Rabies immunoglobulin is available in Sular GH. Hence all Category 3 patients requiring rabies immunoglobulin will be referred to GH. In the reference

period mentioned (October 2021 – March 2022), there were 2527 patients who were exposed to animal bite and availed services in either the PHCs or GH of Sular Block.

**SAMPLE SIZE AND SAMPLING METHOD :** Assuming 50% variability, 95% confidence level and 7.5% absolute precision, and a finite population correction (2527 population size) the required sample size, is 160. Accounting for 10% non-response rate, the corrected sample size is 176.

The list of all patients who were exposed to animal bite in the last 6 months (October 2021 – March 2022) from PHCs and GH of Sular block of Coimbatore district was used as the sampling frame from which the required samples were selected. Using computer generated random number table, the required sample size was selected using simple random method. If the contact details of the selected participants were not available or incorrect, it was replaced by another random number.

**DATA COLLECTION :** Data collection was done by trained health care staff through face-to-face interviews. The selected Health staff were trained adequately on the study protocol, obtaining consent, interviewing using the semi-structured questionnaire.

The selected participants were visited by the trained health staff using the contact details available in the ARV registers and they were explained regarding the purpose of the study. They were invited to participate in the study after giving them details regarding the study and addressing the queries raised by them. Participants who were willing to participate were included in the study after getting informed written consent.

A total of 31 participants were below 18 years, the adult member in the household of these participants (Parents, Elder sibling or other identified guardian) were approached for informed written consent and assent was obtained from the participants.

The participants were interviewed using a semi-structured questionnaire by the health care staff and responses recorded in the format provided. The following information were included in the questionnaire:

- Socio-demographic characteristics of patients,
- Awareness about rabies (including knowledge about susceptible animals, Routes of transmission, Signs of rabies in animal and rabies prevention and control measures),
- Details on the nature of exposure and PEP administration
- Vaccination status of biting dog/cats if known.

**STATISTICAL ANALYSIS :** Data was entered in excel and double verified for ensuring data quality. Data analysis was done using SPSS version 16. Descriptive analysis was done by calculating percentage and frequencies for discrete data.

Mean and standard deviation was calculated for continuous data following normal distribution. For skewed data, median and interquartile range is presented. Inferential statistics was done for finding the association between determinants and compliance. Regression analysis was done for those determinant factors which are found statistically significant in univariate analysis

## OPERATIONAL DEFINITION

All animal bite people exposed to animal bites who completed the recommended course of anti-rabies vaccination (0,3,7,28) irrespective of date appropriateness was considered as compliant; whereas those people exposed to animal bites who discontinued the vaccination at any point during the recommended course were considered as noncompliant or drop-outs. All the noncompliant cases were recorded and the reasons for incomplete vaccination course was found out by interviewing the noncompliant bite people exposed to animal bites or their guardians.

Date appropriateness for the 1st dose is calculated. It was considered as a delay if the ARV was not received on the same day of animal exposure

## ETHICAL CONSIDERATIONS

The study was initiated after ethical approval from the Institutional Ethics Committee of Directorate of Public Health and Preventive Medicine. All the participants were explained about the purpose of the study and informed written consent was obtained. It was ensured that the participants were interviewed at their convenient time. Privacy and confidentiality of information was maintained. Patients who had not taken vaccination as per recommended schedule, were referred for testing neutralizing antibodies. If it is less than 0.5IU/ml, a booster dose was given.<sup>13</sup>

## RESULTS

A total of 155 participants were included in the study. The mean age of the study participants was 37 years (SD -20 years), with participants ranging from 2 years to 82 years.

# - includes the data pertaining to the study participants (i.e. those with animal bite exposure)

\$ - includes data of those who were respondents to the interview

The demographic profile of the study participants showed that almost 25% of those with animal bite exposure were below 19 years of age and more than 2/3rd of the study participants were males. Only 15% belonged to lower or lower middle class as per B G Prasad Classification.

Table 1 .Demographic profile of the study participants

Variable	Frequency	Percentage	
Age group #	<5 years	5	3.2%
	6-10 years	15	9.7%
	11-19 years	18	11.7%
	20-59 years	93	60.4%
	>60 years	24	15.6%
Gender#	Male	102	65.8%
	Female	53	34.2%
Respondents in case of minor (< 18 years of age) (n-31 years)	Father	20	64.5%
	Mother	9	29%
	Sister	2	6%
Type of settlement	Rural	102	65.8%
	Semi-Urban	37	23.9%
	Urban	16	10.3%
Educational Qualification of the respondents <sup>5</sup>	No education	22	14%
	Non -formal school education	6	4%
	Primary	38	25%
	Secondary education	9	6%
	Higher Secondary	47	30%
	Graduate	30	19%
Socioeconomic classification based on B G Prasad classification	Upper class	23	14.8%
	Upper middle class	49	31.6%
	Middle class	60	38.7%
	Lower middle class	13	8.4%
	Lower class	10	6.5%

Table 2. Knowledge regarding rabies among respondents

Knowledge variable	Frequency	Percentage	
<b>Ever heard of rabies</b>	89	57.4%	
<b>Animals transmitting rabies (n-89)</b>	Dogs	89	100%
	Cats	53.9	53.9%
	Domestic livestock	23.6	23.6%
	Wild animals	21.3	21.3%
	Rats/Rodents	28.1	28.1%
<b>Route of transmission of rabies from animals (n-89)</b>	Dog bites	97.8	97.8%
	Other animal bites	39.3	39.3%
	Animal scratches	58.4	58.4%
	Contact with saliva over an intact skin	39.3	39.3%
	Contact with saliva over broken skin	53.9	53.9%
	Contact with urine/faeces	14.6	14.6%
Touching rabid animal	14.6	14.6%	
<b>Signs and symptoms of rabies (n-89)</b>	76	85.4%	
<b>Serious nature of rabies (n-89)</b>	71	79.8%	
<b>Prevention and control of rabies (n-89)</b>	77	86.5%	

Knowledge regarding route of transmission, signs and symptoms, prevention and control of rabies was assessed only among those who have ever heard of rabies(n-89). It was considered to have adequate knowledge on clinical signs and symptoms, if the respondent had given answers like aggressive behaviour, excessive salivation, barking, biting. If the respondent answers that rabies is 100% fatal, it was considered to have adequate knowledge on serious nature of the disease. If the respondent answers wound washing, visit to hospital for PEP and vaccination, then it was recorded as adequate knowledge on prevention and control.

Table 3. Animal Exposure among the study participants

Variable		Number	Frequency
Type of Exposure	Bite wound with bleeding	72	46.5
	Minor scratches or abrasions without bleeding	44	28.4
	Licks on the mucus membrane or broken skin	1	0.6
	contacts on the intact skin	14	9
	Nibbling on skin	24	15.5
Type of animal	Dogs	142	91.6
	Cats	9	5.8
	Rats	3	1.9
	Others	1	0.6
Ownership of the animal	Pet	122	78.7%
	Stray	33	21.2%
Vaccination status of the animal	Vaccinated	45	29%
	Not Vaccinated	49	31.6%
	Status not known	61	39.4%
Bite provocation	Provoked	57	36.8%
	Non provoked	98	63.2%
Anatomical site of bite	Head/neck/face	10	6.5%
	Upper limbs	60	38.7%
	Trunks/genitalia	2	1.3%
	Lower limbs	83	53.5%
No of bite wounds	Single bite wound	93	60%
	Multiple bite wound	20	12.9%
	Scratches only without bleeding	42	27.1%
Category of exposure (extract from ARV register)	Category I	32	20.6%
	Category II	108	69.7%
	Category III	15	9.7%
Clinical signs of biting animal	Apparently normal	145	93.5%
	Abnormal	10	6.5%

Table 4. Details regarding Post exposure prophylaxis

Variable		Frequency	Percentage
Immediate action	Wound washing with soap and water	48	31%
	Wound washing with water only	37	23.9%
	Applied local herbs/medicine	13	8.4%
	Applied antiseptics after wound washing	15	9.7%
	Did nothing	42	27.1%
Wound wash at hospital	Yes	86	55.5%
	No	63	40.6%
	Don't remember	6	3.9%
Delay in receiving 1 <sup>st</sup> dose of vaccination		72	46.5%
Reasons for delay in receiving 1 <sup>st</sup> dose(n=72)	Not aware of the need to get PEP	13	18.1%
	ARV was not available at the hospital during the visit	14	19.4%
	Hospital far away and didn't get time to visit the hospital	8	11.1%
	Animal was normal	4	5.6%
	Waited for 10 days observation	2	2.8%
	Considered the exposure to be minor and no risk	18	25%
	No money for transportation for immediate visit	3	4.2%
	The exposure day was government holiday	4	5.6%
The clinician in the hospital asked me to come on the other day	1	1.4%	
Compliance to all doses of ARV	Yes	93	60%
	No	62	40%
Dosage missed (n=62)	Day 3	7	11.2%
	Day 7	20	32.2%
	Day 28	35	56.4%
Reasons for non-compliance to ARV	Lack of time	16	25.8%
	Not advised by HCP to come for follow up	2	3.2%
	Forgot the schedule	8	12.9%
	Did not care	22	35.5%
	Lack of means of transportation	1	1.6%
	Others	13	21.0%
Rabies immunoglobulin for Category 3 bite		15	100%

Table 5. Factors determining compliance to ARV among study participants

Variable		Compliance (n-93)	Non-Compliance (n-62)	Chi-square test value	P value
Gender	Male	61 (59.8%)	41(40.2%)	0.005	0.945
	Female	32(60.4%)	21(39.6%)		
Age group	<5 years	2(40%)	3(60%)	2.848	0.590
	6-10 years	11(73.3%)	4(26.7%)		
	11-19 years	9(50%)	9(50%)		
	20-59 years	37(61.3%)	36(38.7%)		
	>60 years	14(58.3%)	10(41.7%)		
Type of locality	Rural	52(51%)	50(49%)	11.094	0.003*
	Semi-urban	27(73%)	10(27%)		
	Urban	14(87.5%)	2(12.5%)		
Educational status of respondents	No education	11(500%)	11(50%)	2.589*	0.7631
	Non-formal education	3(50%)	3(50%)		
	Primary	26(68.4%)	12(31.5%)		
	Secondary education	6(66.6%)	3(33.3%)		
	Higher Secondary	27(57.4%)	20(42.5%)		
Graduate/ postgraduate	20(60.6%)	13(39.3%)			
Socioeconomic status	Upper class	12(52.2%)	11(47.8%)	5.827 <sup>z</sup>	0.208
	Upper middle class	26(53.1%)	23(46.9%)		
	Middle class	37(61.7%)	23(38.3%)		
	Lower middle class	9(69.2%)	4(30.8%)		
Ever heard of rabies	Yes	40(60.6%)	26(39.4%)	0.018	0.894
	No	53(59.6%)	36(40.4%)		
Ownership of animals	Pet	70(57.4%)	52(42.6%)	1.643	0.200
	Stray	23(69.7%)	10(30.3%)		
Vaccination status of the animal	Vaccinated	26(57.8%)	19(42.2%)	1.372	0.514
	Non-Vaccinated	27(55.1%)	22(44.9%)		
Provocation	Status unknown	40(65.6%)	21(34.4%)	0.166	0.683
	Provoked	33(57.9%)	24(42.1%)		
Type of bite wound	Non provoked	60(61.2%)	38(38.8%)	4.378	0.112
	Single bite wound	55(59.1%)	38(40.9%)		
	Multiple bite wound	16(80%)	4(20%)		
Anatomical site of exposure	Only scratches without bleeding	22(52.4%)	20(47.6%)	5.939 <sup>z</sup>	0.133
	Head/neck/face	5(50%)	5(50%)		
	Upper limb	30(50%)	30(50%)		
	Trunk/ genitalia	1(50%)	1(50%)		
Category of Exposure	Lower limb	57(68.7%)	26(41.9%)	9.614 <sup>z</sup>	0.007*
	Category 1	12(37.5%)	20(62.5%)		
	Category 2	69(63.9%)	39(36.1%)		
	Category 3	12(80%)	3(20%)		

# - Fisher Exact Test, \* - p value significant at <0.005  
 Among the various factors analysed for finding association with compliance to completion of ARV, type of locality and category of exposure had a significant association (Table 5)

### DISCUSSION

This study builds evidence on the current practice regarding post exposure to animal bites from rural part of Tamil Nadu. The study was done among those people who had an exposure and have approached any of the public health facility in the Sular Block of Coimbatore district. The study showed 40% non-compliance to completion of ARV.

The demographic profile of the study participants showed that almost 25% of those with animal bite exposure were below 19 years of age and 15.6% were elderly. The age distribu-



tion of the exposed is very similar as studied in other states of India.<sup>7</sup> More than 2/3rd of the study participants were males. Only 15% belonged to lower or lower middle class as per B G Prasad Classification.

Most of the bite victims had bite wound with bleeding (46.5%) and abrasions without bleeding (28.4%). Most common anatomical site was on lower limbs (53.5%) followed by upper limbs (38.7%). Majority of the biting animals were dog (91.6%) followed by cats (5.8%); More than 3/4th of the animals were pet animals. Only 29% of the biting animals were known to be vaccinated against rabies.

Based on the data extracted from the ARV registers in the public health facilities, it was found that only 9.7% were identified as Category III. This is in non-alignment with the self-reported information given by the individuals during interview which states that 46.5% had an exposure which led to bleeding. Ideally as per the guidelines any wound with bleeding should be considered as Category III and immunoglobulin should be offered. This is also evident on comparing with other literature, wherein category 3 bites varied from 50- 80%.<sup>7,8</sup> This discrepancy highlights the need for training of HCPs on the anti-rabies guidelines. However unlike other studies, all those individuals who were identified as Category III exposure received RIG. Whereas in other studies it was found that only less than half of those identified as Category III received RIG.<sup>7,10</sup>

The awareness of the respondents on rabies was inadequate. Only 57.4% had heard about rabies; of which only 79.8% knew about the severity of the disease. This level of awareness among this population is lower than those reported in other studies. In the multicentre study conducted across different states of India reported 76% of the participants to have heard about rabies.<sup>7</sup> The perceived risk of transmission of rabies from different animals in the present study was inadequate; the high risk of rabies transmission from cat was perceived only by 53.1%.

The practice followed after the exposure was insufficient with regard to wound wash. In this study only 31% had washed their wound with soap and water and 8.6% had applied some herbal applications which are not recommended. This is very similar to other studies which also reported low levels of wound toileting done after exposure.<sup>7,10</sup>

Delay in getting the 1st dose of ARV was reported among 46.5% and the most common reason quoted for such delay was perceived the severity of the exposure to be less. The second most reason quoted was non availability of ARV during the visit to health facility. The probable reason while probing further revealed that patients were asked to visit the facility

on a daytime for ensuring minimal wastage of ARV. However, this is non-conforming to the guidelines which states that ARV should be given 24/7 at all public health facility irrespective of the wastage incurred.

The compliance to complete course of anti-rabies vaccination for PEP was only 60%. This is very similar to other studies which have reported compliance to be ranging from 55-80%.<sup>7,10-12,14</sup> The highest dropouts was seen for day 28 dose. The reasons quoted for non-compliance was perceived less severity and lack of time. Among the factors assessed for determining the association with compliance, it was found that there was no difference based on gender, education or socio-economic class. However, it was found that non-compliance was high among rural population compared to others. This necessitates targeted health education approach for rural population. Similarly, among the exposure related factors, only category of exposure had a significant association with compliance. A study conducted in Davangere district, a rural part of Karantaka district in the year 2014, found that 82.6% completed the ARV schedule. Lack of time (50%) was the most common reason for non-compliance. It was also found in the study, that wound toileting was followed only by 12.5% of the study participants.<sup>6</sup> In a longitudinal study conducted in a tertiary care centre of Mumbai in the year 2015, it was found that the compliance rate was only 55.2%.<sup>9</sup> In a study conducted by Shanakarajah et al in Bangalore in the year 2015 it was found that the compliance rate for intradermal rabies vaccination (Updated Thai Regimen) to be 77.0%. The major constraints were loss of wages, forgotten dates, cost incurred and distance from the hospital.<sup>11</sup> In another study done in Karnataka in 2017-18, it was found that 50.3% had completed all 4 doses as per the Updated Thai Regimen. The reasons for non-compliance were found as transportation problems, loss of wages, non-availability of rabies biologicals in Peripheral centres, negligence of the participants and forgotten dates.<sup>8</sup>

In a multicentric study, health facility-based survey conducted during May 2017 to January 2018 in six regional-representative states involving 18 health facilities found that the compliance rate for the full course of intra-dermal rabies vaccination was 85.1%.<sup>7</sup> In a study conducted in the urban slums of Chennai found that 55.1% as the compliance rate to the full course of the ARV regimen.<sup>12</sup> In a prospective study done in rural Odisha in the year 2019, found that only 52.3% of the patients were compliant with ARV, and 49.4% were compliant with Rabies Immunoglobulin.<sup>10</sup>

This study has included only those who had approached public health facilities. Hence it cannot be generalised to

those who had never approached a health facility post exposure or those who had approached a private facility, as the estimates derived from this study could be an underestimate.

## CONCLUSION

This study highlights the need for creating more awareness on the need for compliance to completion of all doses of ARV especially among rural population as well as refresher training for the health care providers to ensure compliance to the national rabies prophylaxis guidelines and to ensure avoiding missed opportunity of protecting the exposed from rabies as early as possible.

## REFERENCES

1. Rabies [Internet]. [cited 2022 May 14]. Available from: <https://www.who.int/news-room/fact-sheets/detail/rabies>
2. World Health Organization (WHO)-India. Rabies [Internet]. Available from: <https://www.who.int/india/health-topics/rabies>
3. Deadly rabies spares 43 of 51 patients in Tamil Nadu hospitals | Chennai News - Times of India [Internet]. [cited 2022 May 14]. Available from: <https://timesofindia.indiatimes.com/city/chennai/deadly-rabies-spare-43-of-51-patients-in-tamil-nadu-hospitals/articleshow/67748536.cms>
4. Moloo A. Adopt One Health, Stop Rabies: India launches new national action plan for dog mediated rabies elimination by 2030 [Internet]. 2021 [cited 2022 May 14]. Available from: <https://www.who.int/news/item/25-10-2021-adopt-one-health-stop-rabies-india-launches-new-national-action-plan-for-dog-mediated-rabies-elimination-by-2030>
5. National centre for disease control. National Rabies Control Guidelines. 2015. p. 1–31.
6. Anandaraj R, Balu PS. Compliance to anti rabies vaccine and animal bite management practices in a rural area of Davangere, Karnataka, India. *Int J Community Med Public Heal.* 2016;3(1):170–3.
7. Haradhanalli RS, Anwith HS, Pradeep BS, Isloor S, Bilagumba G. Health-seeking behavior and compliance to post exposure prophylaxis among animal bite victims in India. *Indian J Public Health.* 2019;63:S20–5.
8. Praveen G, Subhashini KJ, Metri SS, Sundar M. Assessment of compliance to anti-rabies vaccination of post exposure prophylaxis among animal bite cases reporting to dedicated anti rabies clinic of a tertiary care hospital, Hassan, Karnataka. *MedPulse Int J Community Med.* 2019;11(3):48–53.
9. Nishant DN. Anti Rabies Vaccination compliance: A longitudinal study amongst patients attending Anti Rabies Vaccination OPD in a tertiary care hospital. *J Med Sci Clin Res.* 2018;6(1):32671–6.
10. 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;13(3).
11. Shankaraiah RH aradanahall., Rajashekar RA nandan., Veena V, Hanumanthaiah AN arayan. D. Compliance to anti-rabies vaccination in post-exposure prophylaxis. *Indian J Public Health.* 2015;59(1):58–60.
12. Shivasakthimani R, D C, Ravivarman G, Murali R. Compliance of anti-rabies vaccine among dog bite victims in an urban slum of Chennai: a cross sectional study. *Int J Community Med Public Heal.* 2018;5(4):1487.
13. National center for disease control. National Guidelines for Rabies prophylaxis. 2019. p. 1–52.
14. Yasodha V, Paul B. Epidemiology and immunoprophylaxis compliance of animal bite cases at an immunization clinic of a tertiary care hospital in Haryana. *APCRI J.* 2015;17:23–5.