

# Attitude of rabies vis-a-vis dog bite exposure among non-victimized people within Srinagar district of Kashmir Valley, India

## Abstract

India has the highest incidence of human rabies within the world. Increasing awareness of the community regarding the disease ought to be thought for controlling the disease. Knowledge, attitudes, and practice of the community on rabies are very important to stop the neglected deadly disease. The present study was carried in Srinagar district. Regarding the attitude of people, the interview schedule was formulated. As per Srinagar Municipal Corporation (SMC), the city is divided into two divisions; four zones and 34 wards. To exploit the diversity of population response, all the four zones were considered for the present investigation. With regards to all dogs are dangerous just 28.75% agreed. When asked about stray dogs are vicious the majority, 65% agreed. About roaming of stray dogs unless they cause problems in human society few, 8.75% agreed. The majority, 70.62% didn't agree about the person provoking the dog for an attack. Whilst 95.31% highlighted that stray dogs are a problem in Kashmir. When asked about the population of stray dogs the majority, 96.56% agreed that there are too many dogs in Srinagar. About leashing during an outbreak, the majority 63.75% agreed. The majority 76.87% were not aware of the killing of dogs was considered as a religious taboo. The attitude of the respondents was positive. The bulk of respondents believed that stray dogs are a public health problem in Srinagar. The attitude of respondents not allocating stray dogs to wander liberally, looking for medical attention if bitten by a dog is reflecting grassroots involvement in the control of rabies.

**Keywords:** attitude, dog bites, non victimized, rabies, srinagar

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## Introduction

According to the World Health Organization, over 1.4 billion individual's are at probable risk of rabies infection within the South-East Asia Region. This accounts for roughly forty-fifths of human deaths because of rabies worldwide. India has the highest incidence of human rabies within the world.<sup>1</sup> Stray dogs and probable jackals in India are the most important vectors or reservoirs that sustain the disease in humans and different animals through the bite of the infected ones. About 98% of animal bites in India are caused by dogs and cats.<sup>2</sup> The majority receive post-exposure prophylaxis however truth range remains lacking owing to lack of well-organized surveillance system.<sup>3</sup> India has reported 20,000 human deaths each year.<sup>4</sup> Increasing awareness of the community regarding the disease ought to be thought for controlling the disease.<sup>5</sup> Knowledge, attitudes, and practice of the community on rabies are very important to stop the neglected deadly disease.<sup>6</sup>

## Materials & methods

The present study was carried in Srinagar district of Jammu and Kashmir Union Territories (Erstwhile Jammu and Kashmir State), India. The purpose is to know the attitude of people towards rabies and thereby the selection of such people comes in front which was done using the below-mentioned sampling plan within the Srinagar district. As per Srinagar Municipal Corporation (SMC), the city is divided into two divisions, four zones and 34 administrative wards (Table 1). The four administrative zones are North, South, East, and West. To maximize the diversity of population response, all the

four zones were considered for the present investigation. From each zone, 4 wards were selected randomly making a total of 16 wards. The wards that were selected were shown in the table 1 with yellow colour. From each randomly selected ward, 20 household irrespective of whether exposed to rabies/dog bite were selected as respondents for data collection (accidental sampling). Thus a total of 320 respondents were the sample size for investigating the attitude of rabies vis-a-vis dog bite exposure among the human population. Our appraisal consisted about polls that were worn to grab the study's objectives. Five domains have been used to verify attitudes with regards to rabies protecting the first useful resource and scientific interest and motion closer to suspect rabid animals. On the whole attitude level of every domain was seen. Finally, the chi-square test was accustomed to inspecting the connection amongst variables and consequently, the files had analyzed the using of the SPSS 20.0 software.

## Result

With regards to all dogs are dangerous just 28.75% agreed. When asked about stray dogs are vicious the majority, 65% agreed. Only 25.31% agreed that dogs bark when they are frightened. About attack for no reason the majority, 71.56% agreed. About roaming of stray dogs unless they cause problems in human society few, 8.75% agreed. The majority, 70.62% didn't agree about the person provoking the dog for an attack. Whilst 95.31% highlighted that stray dogs are a problem in Kashmir. When asked about the population of stray dogs the majority, 96.56% agreed that there are too many dogs in Srinagar. About leashing during an outbreak, the majority 63.75% agreed. The majority 76.87% were not aware about the killing of dogs was

considered as a religious taboo. The overall attitude level towards stray dogs was positive. Statistically there is a non significant difference amid varied zones. It is evident from the table 4 for supporting the rabies program the majority, 92.81% agreed. About 94.68% agreed it is a threat to human health. When asked about it is transmitted from dogs, therefore it should be controlled, the majority 93.12% agreed. Also 63.75% agreed that rabies can be effectively prevented by vaccination. The majority 82.81% were willing to euthanize stray dogs for rabies prevention. When asked about educating people can prevent it, the majority 83.75% agreed. It is obvious to seek medical attention with rabies exposure, the majority 83.43% agreed. The overall attitude level towards rabies disease was positive. Statistically there is a non significant difference amid varied zones. When asked about educating children as it can act as a herd to awareness, most 93.43% agreed. With regards to insufficiency of legislation by the government regarding rabies, most 76.87% agreed. Regarding awareness of population in Srinagar about rabies, the majority 84.37% agreed. Limited budget is given to his hospital for dog bite cases, the majority 82.50% agreed. It is important to get assistance from the animal department if there is a rabid dog, the majority 83.43% agreed. If there is a rabies control program in Srinagar, the majority 92.81% agreed of supporting it. The overall attitude level towards awareness

was positive. Statistically there is a significant difference amid varied zones.

Vaccines are not available throughout the year at the SMHS hospital, the majority 60.62% agreed. When asked about there is lone anti-rabies clinic in Kashmir at SMHS hospital, the majority 71.56% agreed. I would take vaccine if bitten by a dog, the majority 94.06% agreed. The majority, 91.56% responded optimistically about wound cleaning before reaching to the hospital. About the anti-rabies vaccine and its safety for prevention the majority, 64.06% agreed. The majority, 95.31% responded they will suggest surely rabies vaccine to others. The overall attitude level towards rabies vaccine was positive. Statistically there is a non significant difference amid varied zones. When asked about waste ads up to stray dog proliferation in Srinagar the majority, 93.43% agreed. Garbage is the main feeding place of dogs the majority, 93.75% agreed. The majority, 93.43% agreed for environment cleaning and sanitation. The majority, 72.81% didn't agree about Srinagar municipal corporation is best to handle waste. The overall attitude level towards waste was positive. Statistically there is a significant difference amid varied zones. The overall attitude level was positive. Statistically there is a non significant difference amid varied zones (Tables 2-12).

**Table 1** Different zones and the wards of Srinagar district as per Srinagar Municipal Corporation

Wards	North zone (9 wards)	South zone (9 wards)	East zone (8 wards)	West zone (8 wards)
1	Tarbal, Jamia Masjid, Kawdara	Malroo, Lawaypora	Harwan, Nishat	Safa Kadal, IddGah
2	Zadibal, Madeen Sahib	Bemina Khuman Chowk	Dalgate, Lalchowk	Palpora
3	Lal Bazaar, Umer Colony	Allochi Bagh, Magermal Bagh	Dud Dal, Locut dal	Nawab Bazaar, Ali Kadal
4	Hazratbal, Tailbal	Rajbagh, Jawahar Nagar, Wazir Bagh	Jogi Lankar, Zindashah Sahib	Syed Ali Akbar, Islam Yarbal
5	New Theed, Alusteng	Mahjoor Nagar, Natipora, Chanapora	Ganpatyar, Barbarshah	Shaheed Gung, Karan Nagar
6	Zakoora	Baghat Barzallua, Rawalpora	Bana Mohalla, Chinkral Mohalla, S.R.Gung	Qamarwari, Chattabal
7	Ahmad Nagar	Humhama	Akil Mir Khanyar, Khaja Bazar	Bemina East, Bemina West
8	Soura, Buchpora	Pantha Chowk, Khanmoh	Hasna Abad, Makhdoom Sahib	Parimpura, Zainakote
9	Nowshahra, Zoonimar	S.D. colony Batamaloo, Nundrash colony		

Note: The wards revealed with yellow colour signify sampled area

**Table 2** Distribution of respondents according to attitude towards stray dogs

Attitude about Stray dogs	Response	Zones					
		North		West		South	
		n		80	80	80	320
All dogs are dangerous	Agree	21(26.25)		20(25)	27(33.75)	24(30)	92(28.75)
	Not agree	11(13.75)		20(25)	9(11.25)	15(18.75)	55(17.18)
	Not decided	48(60)		40(50)	44(55)	41(51.25)	173(54.06)
Stray dogs by nature are more vicious	Agree	44(55)		56(70)	53(66.25)	55(68.75)	208(65)
	Not agree	4(5)		4(5)	4(5)	4(5)	16(5)
	Not decided	32(40)		20(25)	23(28.75)	21(26.25)	96(30)
One of the reason dog barks is because they are frightened	Agree	26(32.50)		12(15)	26(32.50)	17(21.25)	81(25.31)
	Not agree	11(13.75)		20(25)	21(26.25)	19(23.75)	71(22.18)
	Not decided	43(53.75)		48(60)	33(41.25)	44(55)	168(52.50)

Table Continued...

Attitude about Stray dogs	Response	Zones				N
		North	West	South	East	
Statement	n	80	80	80	80	320
Sometimes stray dog bark to annoy you	Agree	54(67.50)	56(70)	39(48.75)	50(62)	199(62.18)
	Not agree	18(22.0)	16(20)	21(26.25)	18(22.)	73(22.81)
	Not decided	8(10)	8(10)	20(25)	12(15)	48(15)
Most of the time ,dog attacks people for no reason	Agree	48(60)	56(70)	62(77.50)	63(78.75)	229(71.56)
	Not agree	8(10)	8(10)	8(10)	9(11.25)	33(10.31)
	Not decided	24(30)	16(20)	10(12.50)	8(10)	58(18.12)
Stray dogs should not be allowed to roam unless they cause problems in human society	Agree	6(7.5)	7(8.75)	10(12.50)	5(6.25)	28(8.75)
	Not agree	66(82.50)	53(66.25)	53(66.25)	50(62.50)	222(69.37)
	Not decided	8(10)	20(25)	17(21.25)	25(31.25)	70(21.87)
If dog attacks someone, it is because that the person provoked it	Agree	0(0.00)	0(0.00)	0(0.00)	0(0.00)	0(0.00)
	Not agree	67(83.75)	56(70)	47(58.75)	56(70)	226(70.62)
	Not decided	13(16.25)	24(30)	33(41.25)	24(30)	94(29.37)
Stray dogs is a problem in Kashmir	Agree	78(97.50)	75(93.75)	76(95)	76(95)	305(95.31)
	Not agree	2(2.50)	5(6.25)	4(5)	4(5)	15(4.68)
	Not decided	0(0.00)	0(0.00)	0(0.00)	0(0.00)	0(0.00)
There are too many stray dogs in Srinagar	Agree	76(95)	80(100)	75(93.75)	78(97.50)	309(96.56)
	Not agree	4(5)	0(0.00)	5(6.25)	2(2.50)	11(3.43)
	Not decided	0(0.00)	0(0.00)	0(0.00)	0(0.00)	0(0.00)
Leashing of stray dogs during the outbreak can prevent rabies cases in humans	Agree	54(67.50)	40(50)	59(73.75)	51(63.75)	204(63.75)
	Not agree	0(0.00)	0(0.00)	0(0.00)	0(0.00)	0(0.00)
	Not decided	26(32.50)	40(50)	21(26.25)	29(36.25)	116(36.25)
Killing of dogs is considered as a religious taboo	Agree	12(15)	14(17.50)	25(31.25)	23(28.75)	74(23.12)
	Not agree	0(0.00)	0(0.00)	0(0.00)	0(0.00)	0(0.00)
	Not decided	68(85)	66(82.50)	55(68.75)	57(71.25)	246(76.87)

Figures in parenthesis indicate percentage; n indicates sample size, "N" total sample size

**Table 3** Overall attitude towards stray dogs

Level	Zones				Pooled
	North	West	South	East	
Agree	419	416	452	442	1729
Not agree	191	182	172	177	722
Not decided	270	282	256	261	1069

$\chi^2 = 4.692$ ,  $p = 0.583^*$

\*indicates significant difference at 5 % level of significance

**Table 4** Distribution of respondents according to attitude towards rabies disease

Attitude about rabies vaccine		Zones				Pooled
		North	West	South	East	
Statement	Response	n				N
		80	80	80	80	320
Rabies control program should be supported	Agree	76(95)	72(90)	72(90)	77(96.25)	297(92.81)
	Not agree	0(0.00)	0(0.00)	0(0.00)	0(0.00)	0(0.00)
	Not decided	4(5)	8(10)	8(10)	3(3.75)	23(7.18)
Rabies is a threat for human health, therefore it should be controlled	Agree	78(97.50)	76(95)	76(95)	73(91.25)	303(94.68)
	Not agree	2(2.50)	4(5)	4(5)	7(8.75)	17(5.31)
	Not decided	0(0.00)	0(0.00)	0(0.00)	0(0.00)	0(0.00)
Rabies is transmitted by dogs, therefore it should be controlled	Agree	75(93.75)	76(95)	71(88.75)	76(95)	298(93.12)
	Not agree	0(0.00)	0(0.00)	0(0.00)	0(0.00)	0(0.00)
	Not decided	5(6.25)	4(5)	9(11.25)	4(5)	22(6.87)
Rabies can be effectively prevented by vaccinating dogs	Agree	54(67.50)	40(50)	59(73.75)	51(63.75)	204(63.75)
	Not agree	0(0.00)	0(0.00)	0(0.00)	0(0.00)	0(0.00)
	Not decided	26(32.50)	40(50)	21(26.25)	29(36.25)	116(36.25)
Rabies can be prevented by euthanizing stray dogs	Agree	64(80)	72(90)	59(73.75)	70(87.50)	265(82.81)
	Not agree	0(0.00)	0(0.00)	0(0.00)	0(0.00)	0(0.00)
	Not decided	16(20)	8(10)	21(26.25)	10(12.50)	55(17.18)
Rabies can be prevented by educating people	Agree	65(81.25)	68(85)	66(82.50)	69(86.25)	268(83.75)
	Not agree	0(0.00)	0(0.00)	0(0.00)	0(0.00)	0(0.00)
	Not decided	15(18.75)	12(15)	14(17.50)	11(13.75)	52(16.25)
Informed individuals can avoid exposure to rabies and seek appropriate medical attention	Agree	64(80)	71(88.75)	65(81.25)	67(83.75)	267(83.43)
	Not agree	0(0.00)	0(0.00)	0(0.00)	0(0.00)	0(0.00)
	Not decided	16(20)	9(11.25)	15(18.75)	13(16.25)	53(16.56)

Figures in parenthesis indicate percentage, n indicates sample size, "N" total sample size

**Table 5** Overall attitude towards rabies disease

Level	Zones				Pooled
	North	West	South	East	
Agree	476	475	468	483	1902
Not agree	2	4	4	7	17
Not decided	82	81	88	70	321
$\chi^2 = 5.340$ , $p = 0.500^*$					

\*indicates significant difference at 5% level of significance

**Table 6** Distribution of respondents according to attitude towards awareness

Attitude about awareness	Response	Zones				N
		North	West	South	East	
Statement		n				
		80	80	80	80	320
Health education to children is essential as it can act as a herd community to increased awareness	Agree	75(93.75)	76(95)	73(91.25)	75(93.75)	299(93.43)
	Not agree	1(1.25)	2(2.50)	3(3.75)	4(5)	10(3.12)
	Not decided	4(5)	2(2.50)	4(5)	1(1.25)	11(3.43)
There is insufficiency of legislation policy by the government regarding rabies	Agree	69(86.25)	73(91.25)	52(65)	52(65)	246(76.87)
	Not agree	1(1.25)	4(5)	6(7.5)	8(10)	19(5.93)
	Not decided	10(12.50)	3(3.75)	22(27.50)	20(25)	55(17.18)
There is lack of awareness in Srinagar population regarding rabies	Agree	64(80)	68(85)	70(87.50)	68(85)	270(84.37)
	Not agree	4(5)	4(5)	9(11.25)	5(6.25)	22(6.87)
	Not decided	12(15)	8(10)	1(1.25)	7(8.75)	28(8.75)
	Agree	72(90)	68(85)	61(76.25)	63(78.75)	264(82.50)
Limited budget is provided to SMHS hospital for dog bite cases	Not agree	0(0.00)	0(0.00)	0(0.00)	0(0.00)	0(0.00)
	Not decided	8(10)	12(15)	19(23.75)	17(21.25)	56(17.50)
	Agree	72(90)	68(85)	60(75)	67(83.75)	267(83.43)
It is important to get assistance from animal department if I see a rabid dog inside my house/residence	Not agree	1(1.25)	0(0.00)	4(5)	4(5)	9(2.81)
	Not decided	7(8.75)	12(15)	16(20)	9(11.25)	44(13.75)
	Agree	76(95)	73(91.25)	75(93.75)	73(91.25)	297(92.81)
You will support rabies program in city.	Not	0(0.00)	0(0.00)	0(0.00)	0(0.00)	0(0.00)
	Not decided	4(5)	7(8.75)	5(6.25)	7(8.75)	23(7.18)

Figures in parenthesis indicate percentage, n indicates sample size, "N" total sample size

**Table 7** Overall attitude towards awareness

Level	Zones				Pooled
	North	West	South	East	
Agree	428	426	391	398	1643
Not agree	7	10	22	21	60
Not decided	45	44	67	61	217
$\chi^2 = 21.586, p = 0.001^*$					

\*indicates significant difference at 5 % level of significance

**Table 8** Distribution of respondents according to attitude towards rabies vaccine

Attitude about rabies vaccine	Statement	Zones				N
		North	West	South	East	
		n				320
		80	80	80	80	
	Agree	57(71.25)	44(55)	45(56.25)	48(60)	194(60.62)
Vaccines are not available throughout the year at SMHS hospital	Not agree	10(12.50)	4(5)	10(12.50)	12(15)	36(11.25)
	Not decided	13(16.25)	32(40)	25(31.25)	20(25)	90(28.12)
	Agree	47(58.75)	77(96.25)	54(67.50)	51(63.75)	229(71.56)
There is lone anti rabies clinic in Kashmir in Kashmir at SMHS hospital	Not agree	0(0.00)	0(0.00)	0(0.00)	0(0.00)	0(0.00)
	Not decided	33(41.25)	3(3.75)	26(32.50)	29(36.25)	91(28.43)
	Agree	74(92.50)	76(95)	76(95)	75(93.75)	301(94.06)
I would take vaccine ,if I encounter a dog bite	Not agree	0(0.00)	0(0.00)	0(0.00)	0(0.00)	0(0.00)
	Not decided	6(7.50)	4(5)	4(5)	5(6.25)	19(5.93)
	Agree	76(95)	74(92.50)	72(92.50)	71(88.75)	293(91.56)
If I get bitten by a dog, I would clean the wound and consult doctors as soon as possible	Not agree	0(0.00)	0(0.00)	0(0.00)	0(0.00)	0(0.00)
	Not decided	4(5)	6(7.50)	8(10)	9(11.25)	27(8.43)
	Agree	50(62.50)	48(60)	55(68.75)	52(65)	205(64.06)
Anti rabies vaccine is safe for preventing rabies	Not agree	0(0.00)	0(0.00)	0(0.00)	0(0.00)	0(0.00)
	Not decided	30(37.50)	32(40)	25(31.25)	28(35)	115(35.93)
	Agree	76(95)	77(96.25)	74(92.50)	78(97.50)	305(95.31)
I would recommend anti rabies vaccine to others	Not agree	0(0.00)	0(0.00)	0(0.00)	0(0.00)	0(0.00)
	Not decided	4(5)	3(3.75)	6(7.50)	2(2.50)	15(4.68)

Figures in parenthesis indicate percentage, n indicates sample size, "N" total sample size

**Table 9** Overall attitude towards rabies vaccine

Level	Zones				Pooled
	North	West	South	East	
Agree	380	396	376	375	1527
Not agree	10	4	10	12	36
Not decided	90	80	94	93	357
					$\chi^2=6.121, p =0.409^*$

\*indicates significant difference at 5 % level of significance

**Table 10** Distribution of respondents according to attitude towards waste

Attitude about waste	Zones					
	North	West	South	East	Pooled	
Statement	Response		n	N		
	80	80	80	80	320	
Waste leads to stray dogs proliferation in Srinagar	Agree	72(90)	76(95)	77(96.25)	74(92.50)	299(93.43)
	Not agree	0(0.00)	0(0.00)	0(0.00)	0(0.00)	0(0.00)
	Not decided	8(10)	4(5)	3(3.75)	6(7.50)	21(6.56)
Garbage is the main feeding place of dogs in the city	Agree	71(88.75)	78(97.50)	73(91.25)	78(97.50)	300(93.75)
	Not agree	0(0.00)	0(0.00)	0(0.00)	0(0.00)	0(0.00)
	Not decided	9(11.25)	2(2.50)	7(8.75)	2(2.50)	20(6.25)
A proper sanitation and environment cleaning is essential in city	Agree	73(91.25)	77(96.25)	74(92.50)	75(93.75)	299(93.43)
	Not agree	0(0.00)	0(0.00)	0(0.00)	0(0.00)	0(0.00)
	Not decided	7(8.75)	3(3.75)	6(7.50)	5(6.25)	21(6.56)
Srinagar municipal corporation is best to handle solid waste in the city	Agree	0(0.00)	0(0.00)	0(0.00)	0(0.00)	0(0.00)
	Not agree	62(77.50)	70(87.50)	41(51.25)	60(75)	233(72.81)
	Not decided	18(22.50)	10(12.50)	39(48.75)	20(25)	87(27.18)

Figures in parenthesis indicate percentage, n indicates sample size, "N" total sample size

**Table 11** Overall attitude towards waste

Level	Zones				Pooled
	North	West	South	East	
Agree	216	231	224	227	898
Not agree	62	70	41	60	23
Not decided	421	19	55	33	149

$\chi^2=26.801$  p value=0.001\*

\*indicates significant difference at 5 % level of significance

**Table 12** Overall attitudes

Level	Zones				Pooled
	North	West	South	East	
Agree	1919	1944	1911	1925	7699
Not agree	272	270	249	277	1068
Not decided	529	506	560	518	2113

$\chi^2=5.068$  p =0.535\*

\*indicates significant difference at 5 % level of significance

## Discussion

Rabies is one of the dreadful diseases that attack humans. This sensitive apprehension, exceeding any accurate public health peril, is due to many factors that enclosed since rabies first gained its notion as suffering. The current issues symbolized that the attitudes of the

respondent were positive. The bulk of respondents believed that stray dogs are a public health problem in the Srinagar and administration should recommend a dog population restraint program. This might be owing to improved communication plus information regarding their dwelling, counting dog bites as well. So, if anyone suffered a dog bite the people advise them to visit the Shri Maharaja Hari Singh Hospital

(SMHS). Respondents attitude of not allowing stray dogs to roam freely, seeking medical attention if bitten by a dog are excellent signs of the grassroots involvement in the control of rabies. The respondents alleged that the Department of Health's target should be to condense the figure of human deaths from rabies. Thus it is very essential to create awareness in people. Community perception plus rational behaviors are essential factors to accomplish this purpose. The majority was in favor of the rabies control program. Though, their enthusiasm is not a promise about cooperating with the government in rabies control. The reason is there is no national rabies control program in Srinagar. The negative behaviors towards waste management could be due to more garbage and dogs that are found on the streets.

In conclusion, the attitude of the respondents was positive. The bulk of respondents believed that stray dogs are a public health problem in Srinagar. The attitude of respondents not allocating stray dogs to wander liberally, looking for medical attention if bitten by a dog is reflecting grassroots involvement in the control of rabies.

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## Conflicts of interest

The authors declare no conflicts of interest.

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