

Awareness Regarding First Aid Management of Dog Bite among Adults Residing in Selected Areas of District Ludhiana, Punjab

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ABSTRACT

Introduction: The relationship between humans and dogs is unique. Animal bites, especially those from dogs, can result in sharp and deep wounds that are prone to infection. Rabies infection can occur through cuts, scratches etc., which allows the contamination of mucous membranes with the dog's saliva. Dog bite cases in India rose from 2.18 million in 2022 to 2.75 million in 2023, according to research conducted by the Ministry of Health and Family Welfare. Abraham Robert, reported that the number of canine attacks recorded in 2022 has increased by 27.18% from 2021 in Ludhiana. From extensive review of literature, it was found that first aid management of dog bite among community people is very limited. Thus, researchers felt motivated to assess adult awareness of first aid management for dog bites.

Objective : The study was conducted to assess awareness regarding first aid management of dog bite among adults.

Methodology: A descriptive study was conducted on 210 adults, 110 of urban area (Guru Gobind Singh Nagar, Shimlapuri) and 100 of rural area (Village Malakpur) of district Ludhiana, Punjab, selected by convenience sampling technique. A self-structured questionnaire (MCQs) was used to assess the awareness regarding first aid management of dog bite. Analysis was done using descriptive and inferential statistics as per the objectives of study.

Results: The findings of the study revealed that more than half of the adults i.e. 127(12.91 \pm 1.28) had above average level of awareness, whereas 55(8.58 \pm 1.95) had average level of awareness, 23(16.60 \pm 1.632) had good level of awareness and 5(4.80 \pm 2.00) had below average level of awareness regarding first aid management of dog bite. But less than half of the adults 47% were aware regarding first aid management of dog bite. Socio-demographic characteristics such as educational status, source of information and the socioeconomic status of urban area were statistically significant at $p \leq 0.05$.

Conclusion: It can be concluded that less than half of the adults 47% were aware regarding first aid management of dog bite. Therefore, community awareness about first aid management of dog bite is very limited.

Keywords: dog bite, awareness, first aid management

INTRODUCTION

The relationship between humans and dogs has been a unique one,¹ with dogs being capable of transmitting various zoonotic diseases to humans. Rabies is one of the most severe and life-threatening diseases,² and it is both endemic and epidemic worldwide.³ Animal bites, particularly those from dogs, can result in sharp and deep wounds that are prone to infection. Immediate first aid is critical to clean the wound and minimise the risk of infection.⁴ The most prevalent way that rabies is spread, is through dog bites. A dog's saliva can contaminate mucous membranes by nibbling, small scratches, abrasions, or licks on damaged skin, which can result in rabies infection.⁵ These bites can cause significant damage, impacting not only the skin but also bones, muscles, tendons, blood vessels, and nerves. The severity of the bite, type of exposure, location of the wound, and the immune status of the victim all play crucial roles in the likelihood of developing rabies.⁶ Rabies symptoms typically take two to three months before they manifest, although it can take as little as one week or as long as a year. The site of the virus entry and the number of viral particles affect its length. Faster onset of symptoms is often associated with bites closer to the brain. Once symptoms appear, rabies is almost usually lethal. Therefore, everyone exposed to the virus should seek medical attention right away.⁷

In humans, rabies manifests as fever, headache, hydrophobia (fear of water), hyperactivity, foaming at the mouth, and heightened sensitivity to stimuli such as noise, bright light, or air. As the disease progresses, patients may experience delirium, hallucinations, violent body movements, confusion, and agitation, leading to a rapid decline in neurological function. In animals, clinical signs of rabies include erratic behavior such as unprovoked biting and aggression, abnormal eating behaviors, consumption inedible objects like

sticks, nails, or feces, excessive drooling, aimless running, hoarse barking or growling, and an inability to vocalize. As the disease advances, paralysis or shivering of body parts may develop, often followed by death.⁸

Post-exposure prophylaxis (PEP) is essential to prevent the development of rabies after administering basic first aid for a dog bite, particularly if the bite occurred from an animal suspected of being rabid. PEP typically consists of a series of rabies vaccines, and for instant protection, rabies immunoglobulin may be administered in specific circumstances.⁹

Improving public knowledge regarding the causes, modes of transmission, symptoms, proper first aid practices, treatment options, and the World Health Organization's guidelines for post-exposure prophylaxis (PEP) is key to effectively controlling and preventing rabies.

NEED OF THE STUDY

Rabies is a serious public health issue in over 150 countries, mainly in Asia and Africa. It is a viral, zoonotic, neglected tropical disease that causes tens of thousands of deaths annually, with 40% being children under 15 years old.⁵ In India, incidents of dog bites have increased from 2.18 million in 2022 to 2.75 million in 2023, with Maharashtra reporting the highest incidents. Punjab Health Department reported 1,65,119 cases of dog bite over the past year in a study conducted in 2023.¹⁰

A study conducted in 2021 found that 76% of people had heard about rabies, with 63.5% knowing it as a deadly disease. Only 37.3% of participants had knowledge about adequate first aid management. Of these, only 37.5% flushed their injury site with running water, and 35% had a full course of vaccine.¹¹

Another study carried out in 2023 discovered a substantial correlation between certain sociodemographic factors and knowledge about administering first aid for

dog bites. The data was analysed using descriptive and inferential statistics.⁶ A survey conducted in 2017 found that 22% had knowledge about observation of dogs for 10 days, but only 20%, 32%, and 20% of people had knowledge on post exposure prophylaxis. 34% of people preferred traditional treatment.¹²

In Ludhiana, Punjab, the number of canine attacks recorded in 2022 has increased by 27.18% compared to 6,100 cases in 2021. An average of 40 new cases of dog bite were reported daily in this district.¹³ Despite widespread practices of applying chili paste, turmeric paste, oils, and *surma* at the dog bite wounds, there is lack of scientific evidence supporting their effectiveness and safety.

It is essential to determine the level of knowledge among adults living in certain urban and rural regions of Ludhiana, Punjab, about the first aid treatment of dog bites. Though it is limited and dominated by myths and misunderstandings, community knowledge on the first aid care of dog bites is essential for rabies prevention and control. First aid is the responsibility of all persons, as it can immensely help save one's life.

MATERIALS AND METHODS

A descriptive study was conducted in Ludhiana, Punjab, India, to assess awareness regarding first aid management of dog bite among adults. A quantitative approach was employed, utilizing a descriptive research design. The study took place in the urban area of Guru Gobind Singh Nagar, Shimlapuri, and the rural area of village Malakpur.

The target population comprised adults aged 21 to 60 years residing in these areas. A total sample of 210 participants was selected, with 100 from the rural setting and 110 from the urban setting. Sample size estimation was calculated using Cochran's formula, resulting in a final sample size of 210. A convenience sampling technique was used for participant selection.

Inclusion criteria allowed for adults aged 21-60 who were willing to participate, while exclusion criteria included individuals who could not understand Hindi, Punjabi, or English, as well as those diagnosed with psychiatric illnesses. Every factor in the study was connected to the emphasis on managing dog bites with first aid.

A structured questionnaire was developed based on a thorough literature review and expert consultations. It included a socio-demographic profile section and another section assessing awareness regarding first aid management of dog bite. It included sections like dog bite, transmission of rabies, its sign and symptoms, first aid management of dog bite and its treatment modalities.

The research tool was validated through consultations with nursing experts, and its reliability was determined using the split-half method, yielding a reliability coefficient of $r = 0.79$. A pilot study was conducted with 10% of the target population to assess the feasibility of the study, leading to necessary modifications based on feedback.

Data collection took place in August 2024, with written permission obtained from relevant authorities. Ethical approval was secured from the Ethical Committee of DMC&H, Ludhiana, and informed consent was obtained from all participants, ensuring confidentiality.

Data analysis was performed using descriptive statistics, including frequency and percentage distribution, along with inferential statistics such as ANOVA and independent t-tests. The analysis was conducted using Microsoft Excel and SPSS (version 25).

RESULTS

The analysis of socio-demographic profile of adults revealed that out of 210 subjects 56(26.7%) subjects were in category of 21-30 years whereas mean age was 40.79 ± 12.15 and 133(63.4%) were females, 185(88.0%) were married, 110(52.4%) were from urban area, 74(35.2%) had studied up

to secondary, 142(67.6%) were from sikh religion, 42(38.2%) were from upper middle class II in urban area (according to Kuppaswamy socio-economic scale,2024) and 63(63%) were from middle class in rural area (according to Udai Pareek's socio-economic scale), 127(60.5%) were not dog lovers, 170(80.9%) were not owning a dog, 183(87.1%) had no history of dog bite and 108(51.4%) had collected the information regarding first aid management of dog bite from health care professionals. The analysis showed that educational status, source of information and socioeconomic status in urban area were statistically

significant with $p \leq 0.05$ whereas age, gender, marital status, area, religion, dog lovers, dog owners and history of dog bite were statistically non-significant.

The findings of the present study about level of awareness regarding first aid management of dog bite among adults revealed that 127(60.5%) of subjects had above average level of awareness followed by 55(26.2%) of subjects had average, 23(10.9%) had good and 5(2.4%) had below average awareness regarding first aid management of dog bite.

However, only 47% subjects were aware regarding first aid management of dog bite.

Table 1(a): Level of awareness regarding first aid management of dog bite among adults. N=210.

Level of Awareness	Score	f (%)	Mean±SD
Good	16-20	23(10.9)	16.60±0.16
Above Average	11-15	127(60.5)	12.91±0.12
Average	6-10	55(26.2)	8.58±0.91
Below Average	≤5	5(2.4)	4.80±0.20

Mean±SD=11.99±0.207

Maximum Score-20

Minimum score-0

Table 1(b): Level of awareness regarding first aid management of dog bite among adults as per sections of questionnaire. N=210.

Section	Section Title	Mean± SD	Mean%
1,2,3	Awareness of dog bite, Mode of transmission, signs and symptoms	5.1524± 1.29984	73.6%
4	First-aid management of dog bite	2.82±1.378	47%
5	Treatment modalities	4.1095± 1.34925	58.7%

Table 2: Relationship of awareness regarding first aid management of dog bite with selected socio-demographic variables of adults. N=210.

Socio-demographic Variables	f (%)	Mean± SD	Df	F/t Value	p Value
Age (in years)					
21-30	56 (26.7)	11.59± 3.736	3	F= 1.699	p= 0.168 ^{NS}
31-40	49 (23.3)	12.59± 2.541			
41-50	52 (24.8)	12.35± 2.257			
51-60	53 (25.2)	11.51± 3.006			
Gender					
Male	77 (36.6)	11.95± 2.892	1	t= .877	p=0.691 ^{NS}
Female	133 (63.4)	12.02± 3.080			
Marital Status					
Married	185 (88.0)	12.02± 2.933	2	F=.111	p=0.895 ^{NS}
Unmarried	20 (9.5)	11.90± 3.127			
Widow/Widower	5 (2.5)	11.40± 5.143			
Area					
Urban	110 (52.4)	11.87±2.928	1	t=.553	p=0.657 ^{NS}
Rural	100 (47.6)	12.12±3.099			
Educational Status					
Illiterate	30 (14.3)	10.43± 3.048	3	F= 7.568	p=0.000*
Primary	68 (32.4)	11.56± 3.029			
Secondary	74 (35.2)	12.19± 2.899			
Graduate or above	38 (18.1)	13.61± 2.343			

Religion					
Sikh	142 (67.6)	12.11± 2.861	2	F=2.059	p=0.107 ^{NS}
Hindu	61 (29.1)	11.75± 3.228			
Others	7(3.3)	28.5± 3.271			

Socio economic status of family					
(For urban area)					
According to Kupppuswami socioeconomic scale 2024					
n=110					
Socio demographic variables	F (%)	Mean ± SD	Df	F/t Value	p Value
Upper class I	13(11.8)	13.15±2.375	4	F=4.258	p=0.03*
Upper middle class II	42(38.2)	12.69±2.311			
Lower middle class III	31(28.2)	11.58±3.009			
Upper lower class IV	18(16.4)	10.39±3.600			
Lower class V	6(5.4)	9.33±2.251			
Socio economic status of family					
(For rural area)					
According to Udai Pareek’s socio economic scale 2024					
n=100					
Socio demographic variables	F (%)	Mean ± SD	Df	F/t Value	p Value
Upper class	2(2)	14.50±0.707	4	F=2.117	p=0.08 ^{NS}
Upper middle class I	17(17)	12.71±3.738			
Middle class	63(63)	12.37±2.864			
Lower middle class	17(17)	10.59±2.959			
Lower class	1(1)	8.00			
Dog Lovers					
Yes	83 (39.52)	12.77±2.786	1	t=.002	p=0.258 ^{NS}
No	127(60.48)	11.49±3.026			
Dog Owner					
Yes	40(19.04)	12.70±3.180	1	t=.098	p=0.925 ^{NS}
No	170(80.96)	11.83±2.933			
History of dog bite					
Yes	27(12.85)	11.70±2.686	1	t=.589	p=0.690 ^{NS}
No	183(87.15)	12.04±3.041			
Source of Information					
YouTube	32(15.23)	12.19± 3.157	3	F=7.951	p=0.000*
Healthcare Professionals	108(51.42)	12.80± 2.501			
Friends or family	69(32.9)	10.65± 3.240			
Others	1(0.5)	11.00			

*Significant $p \leq 0.05$
Non Significant $p \geq 0.05$

DISCUSSION

The purpose of this study was to determine how well-informed adults were about administering first aid for dog bites. The main conclusions of the current study are examined in relation to those of other investigations.

The first objective of the study was to assess level of awareness regarding first aid management of dog bite among adults and the study revealed that out of 210 subjects, 60.5% had above average awareness, while 26.2% had average, 10.9% had good, and 2.4% had below average. Section wise analysis concludes that only 47% of the subjects had knowledge about first aid

management of dog bite. The findings of the present study were supported by a study conducted by S Vimala, G Bhuvaneshwari, S Priya Janaki, K Ishwariya, S Inbarani (2019) on 60 adults living in Mappedu village, Tamil Nadu. A study that evaluated adults' knowledge of first aid management of dog bite and rabies treatment methods found that, out of 60 samples, 42 (70%) had moderate knowledge, 16 (27%) had inadequate knowledge, and only 2 (3%), with a mean of 10.51 and standard deviation of 2.93, had adequate knowledge.¹⁴

The study's second goal was to determine the association between persons' sociodemographic characteristics and their

knowledge of how to provide first aid for dog bites. It revealed that socio-demographic variables like educational status, source of information and socioeconomic status in urban area were statistically significant at $p \leq 0.05$ whereas age, gender, marital status, area of residency, religion were statistically non-significant. The findings of present study were supported by a study conducted by Renuka (2019) on 60 samples between the age group of 21–40 years of selected community area (Kishangarh) district Ludhiana, Punjab. According to a study evaluating residents of a chosen community area's knowledge of dog bite and rabies prevention, sex, occupation, family type, and the presence of a dog at home were statistically significant at $p \leq 0.05$, while age, religion, education, monthly income, and information source were statistically non-significant.¹⁵

CONCLUSION

Hence, it is concluded that less than half of the adults 47% were aware regarding first aid management of dog bite. In order to prevent and control rabies, community awareness of first aid management of dog bite is essential. But this is limited and their minds are preoccupied with myths and misconceptions so there is a need to increase the community awareness regarding first aid management of dog bite which can be done through street plays, awareness camps, printed materials like booklets and pamphlets.

Declaration by Authors

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REFERENCES

1. Gee NR, Rodriguez KE, Fine AH, Trammell JP. Dogs Supporting Human Health and Well-Being: a Biopsychosocial Approach. *Frontiers in Veterinary Science* [Internet]. 2021 Mar 30;8(8). Available from: <https://www.frontiersin.org/journals/veterinary-science/articles/10.3389/fvets.2021.630465/full>
2. Dr Montgomery Joshua. Zoonotic diseases in dogs: A Complete Guide. 2024 August 28 Available from: <https://bettervet.com/resources/pet-diseases/zoonotic-diseases-in-dogs>
3. Rabies- Symptoms & causes. Mayo clinic. Available from: <https://www.mayoclinic.org/diseases-conditions/rabies/symptoms-causes/syc-20351821>
4. Ealias J, Tom AJ, Emmanuel A, Raju A. Knowledge regarding first aid of dog bite among upper primary school students-descriptive study. 2023[cited on 2024 May 10]; 10(6): c818-c824 Available from: <http://www.jetir.org/papers/JETIR2306290.pdf>
5. Rabies WHOint. World health organization: WHO; 2024 June Available from: <https://www.who.int/news-room/fact-sheets/detail/rabies>
6. S Sandra, S Thasna, R S Savithamol, R Veena, P R Sneha, S V Vineetha, S S Sruthi, Etal. A Descriptive Study to Assess the Knowledge Regarding First Aid Management of Dog Bite. *International Journal for Multidisciplinary Research (IJFMR)*. Volume, Issue 4, July-August 2023. Available from: <https://doi.org/10.36948/ijfmr.2023.v05i04.5666>
7. T. J. Vincent DVM, MPH- Written by N. Tim – Updated on August 23, 2024 What you need to know about rabies. Available from: <https://www.medicalnewstoday.com/articles/181980>
8. FAQs: Frequently asked question on rabies. World Health Organization. 2013 Dec 11. Available from: <https://www.who.int/publications/i/item/B5010>
9. National guidelines for rabies prophylaxis 2019.cdr Available from: <https://ncdc.mohfw.gov.in/wp-content/uploads/2024/04/National-Guidelines-for-Rabies-Prophylaxis.pdf>
10. Vinu. Dog-bite menace in India. RAU'S IAS study circle. Current Affairs. 2024 March 15 Available from:

- <https://compass.rauias.com/current-affairs/dog-bite-menace-india/>
11. Sivagurunathan C, Umadevi R, Balaji A, Rama R, Gopalakrishnan S. Knowledge, attitude, and practice study on animal bite, rabies, and its prevention in an urban community. *Journal of Family Medicine and Primary Care* [Internet]. 2021 Jan 1;10(2):850. Available from: https://doi.org/10.4103/jfmprc.jfmprc_1674_20
 12. Balakrishnan S. Knowledge level and attitude on rabies and dog bite management among rural people. *Journal of Entomology and Zoology Studies*. 2018[Feb];6(2):1963–1967. Available from: <https://www.entomoljournal.com/archives/2018/vol6issue2/PartU/6-1-379-939.pdf>
 13. Abraham R. “Startling” rise in dog bite cases in Ludhiana, up by 27.18% this year. *Hindustan Times*. 2023 March 05. Available from: <https://www.hindustantimes.com/cities/chandigarh-news/startling-rise-in-dog-bite-cases-in-ludhiana-up-by-27-18-this-year-101678038655668.html>
 14. Vimala S, Bhuvaneshwari G, Janaki Priya S, Ishwariya K, & Inbarani S. A study to assess the level of knowledge on first aid management of dog bite and treatment modality of rabies among adult. *International Journal of Research in Pharmaceutical Sciences*, 2019 Available from- <https://ijrps.com/home/article/view/2719>
 15. Renuka. Assess the Knowledge of People (21-40 years) regarding Dog Bite and Prevention of Rabies Residing in selected Community Area. *International Journal of Nursing Education and Research* (2019), Volume 7, Issue 2. Available from: <https://ijneronline.com/HTMLPaper.aspx?Journal=International%20Journal%20of%20Nursing%20Education%20and%20Research;PID=2019-7-2-7>

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