



# **Knowledge, Attitude and Practice of Dog Bite Patients and their Attendants Visiting Jinnah Post Graduate Medical Centre – A Tertiary Care Hospital in Karachi**

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## **Authors' contributions**

*This work was carried out in collaboration among all authors. All authors read and approved the final manuscript.*

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## **ABSTRACT**

Dog bite is a global issue and endemic to especially African and Asian countries, where due to lack of awareness dogs (both domestic and wild) are either un-vaccinated or unneutered. The higher authorities seems to be least bothered concerning the increasing number of stray dog in these countries. Although lot of planning is done, no proper execution of these strategies are observed. The other issue is the negligent attitude of people towards wound management. The objective of this study is to assess the knowledge, attitude and practice of dog bite patients and their attendants visiting Jinnah Post-graduate Medical Centre, a tertiary care hospital in Karachi. The structured questionnaires were got filled via interview from both the patient and their attendant at the time they visited the dog bite clinic in the hospital. The results of the study revealed in appropriate and irresponsible attitude on both the part of patients and the concerned authorities responsible for is management. This research work was an endeavor to do the gap analysis in order to ensure practical implementation to overcome the endemic of dog bite and rabies.

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## 1. INTRODUCTION

Rabies is globally, an endemic disease. It is more prevalent in Asian states. Rabies virus is spread through the body fluids of the infected dog. Infected animals can spread the virus by biting another animal or a person. In occasional cases, rabies can be spread when infected saliva gets into an open wound or the mucous membranes, such as the mouth or eyes. Rabies virus is double stranded RNA. Rabies is a neglected with high incidence rate in Pakistan with poor surveillance system. [1–3].

To reduce the risk of having contact with rabid animals, following steps may be taken: vaccinate the pet, keep the pets confined, protect small pets from predators, report stray animal to local authorities, don't approach wild animals, consider the rabies vaccine if travelling in country where rabies is common, if bite is caused by a dog with an unknown rabies vaccine history, or by a dog that's acting erratically or appears to be sick, when bleeding doesn't stop, bite causes intense pain, exposes bone, tendons, or muscle; causes loss of function, such as an inability to bend fingers; looks red, swollen, inflamed or leaks pus or fluid.

In case of dog bite, the primary step is the wound management. Wash the wound with soap and warm water. Gently press a clean cloth over the wound to stop the flow of blood. Apply an anti-bacterial ointment/ topical antibiotic (povidone iodine) to the wound and cover with a sterile bandage.

Dog bites may cause several complications including bacterial infections (causative micro-organisms present in dog's saliva - staphylococcus, pasteurella, and capnocytophaga), tetanus, rabies and nerve or muscle damage.

The diagnosis of animal and human rabies can be made by following ways: clinical examination, histopathology, virus cultivation; serology and virus antigen detection. Although each of the first 4 methods have distinct advantages, none provide a rapid definitive diagnosis. The Fluorescent antibody test is now the most widely used method for diagnosing rabies infection in animals and humans.

The general treatment protocol for rabies virus includes following rabies shots: Rabies immune globulin to prevent the virus from causing infection. Part of this injection is given near the area where the animal has bitten if possible, at earliest possible after the bite. Secondly, a series of rabies vaccinations to help your body learn to recognize and combat the rabies virus. Rabies vaccinations are given as injections in the arm. The person bitten by the dog receives four injections over 14 days.

Knowledge, attitude and practice studies concerning rabies were conducted to evaluate the gaps to avoid dog bites cases and to timely diagnose and treat rabies [4–5].

Rabies control policy may include objectives for prevention of rabies in humans with current PEP as well as prevention and control of canine rabies via parenteral vaccination of dogs to interfere the chain of transmission especially in regions with high dog bite injury burden and greater population density [6].

### 1.1 Study Duration

October 2020 to December 2020.

### 1.2 Study Design

The study design was a cross-sectional survey. Questionnaires were developed for the collection and interpretation of the data of the population visiting anti-rabies clinic in the study. The study was conducted in anti-rabies vaccination clinic of Jinnah Post-graduate medical center. The questionnaire was prepared in both English and Urdu languages.

## 2. METHODS

During the period of study the total of 750 patients data was collected that visited anti-rabies clinic. All the new cases of animal bite during this period are included in the study after obtaining informed consent from them. The survey included population of all age groups, both genders, residents of both rural and urban areas having varied levels of education.

## 2.1 Data Analysis

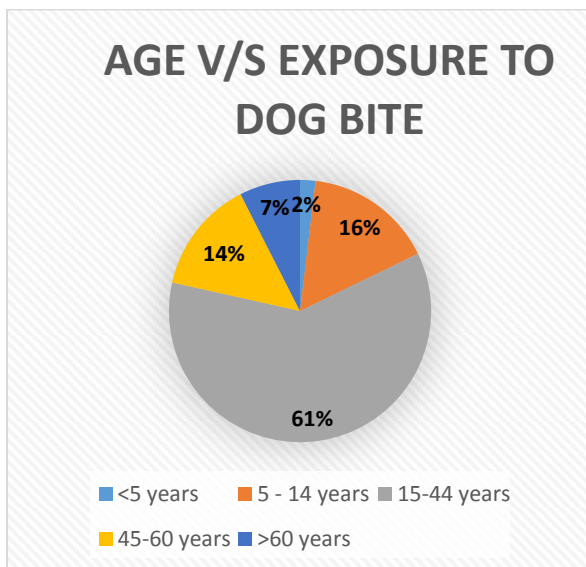
Data was collected by a trained survey enumerators to reduce the likelihood of missing critical data points. The participant’s knowledge, attitude, and practices regarding rabies disease were assessed via the structured questionnaire. SPSS 20.0 software was used for initial descriptive analysis and univariate analysis in order to estimate respondent’s knowledge, attitude, and practices related with rabies.

## 3. RESULTS

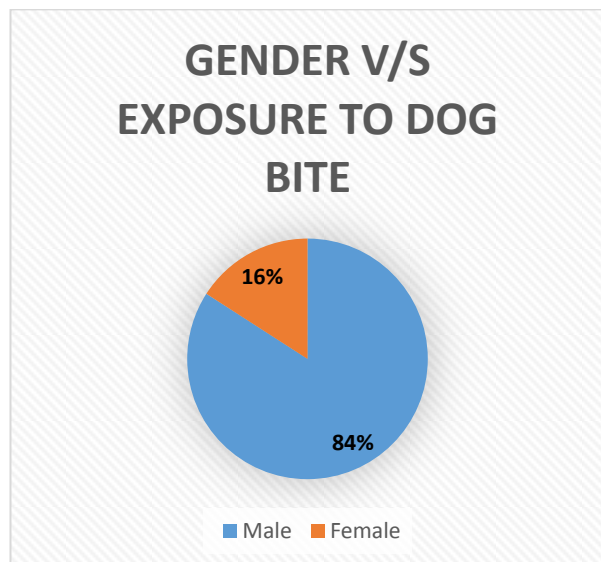
The dog bite patients responses revealed lower level of education, unawareness of the behavior to adopt to remain safe from dog bite and insufficient information about wound washing and significance of immediate medical consultation (see Graph 1 – 16).

The results of the patients’ attendants profile, knowledge, attitude and practice was also recorded (Fig 1 – 23).

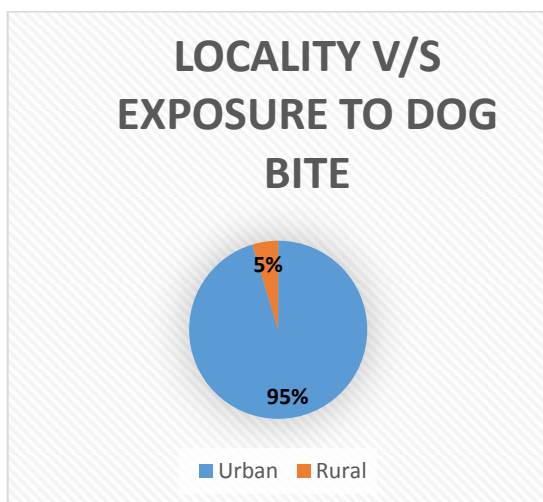
### QUESTIONNAIRE RESULTS FOR PATIENTS EXPOSED TO DOG BITE



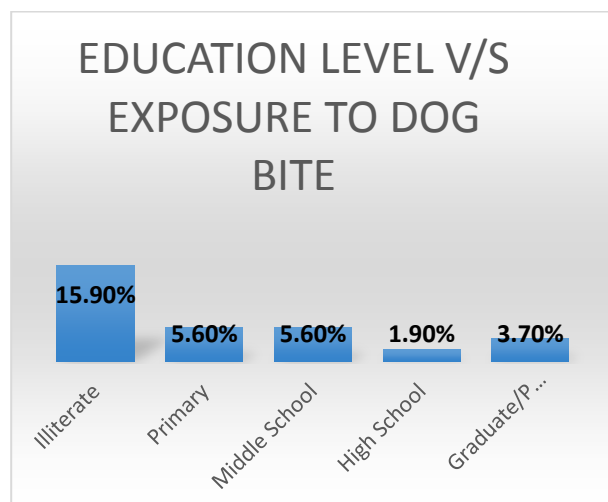
Graph 1. Age of dog bite patients



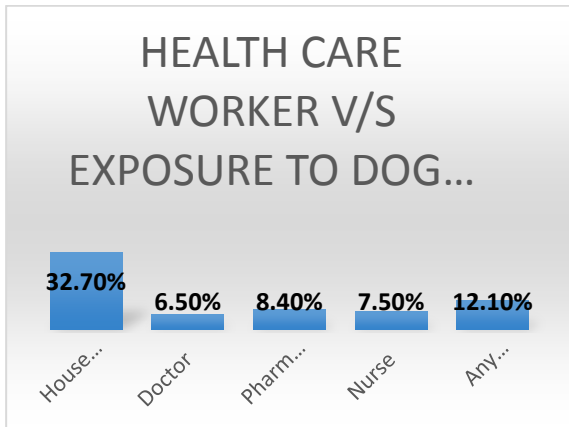
Graph 2. Gender of dog bite patients



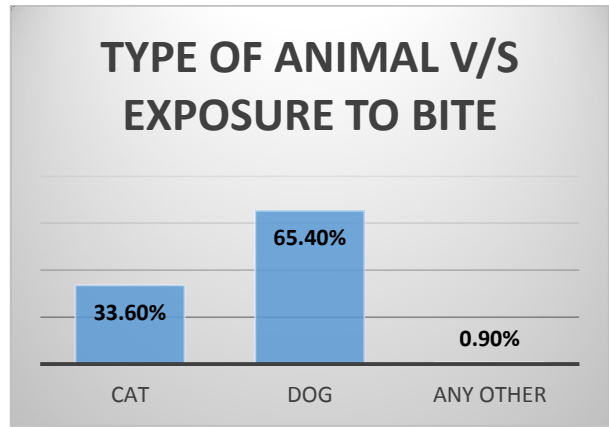
Graph 3. Locality of dog bite patient



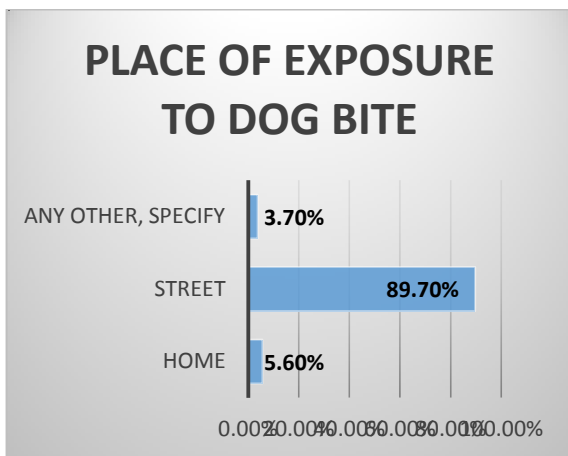
Graph 4. Education level of dog bite patients



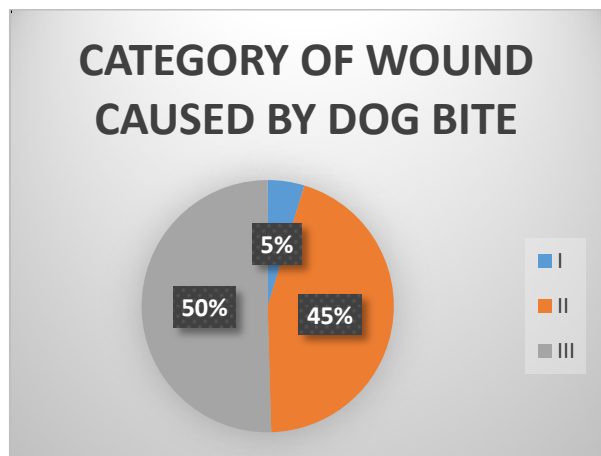
Graph 5. Whether dog bite patients were



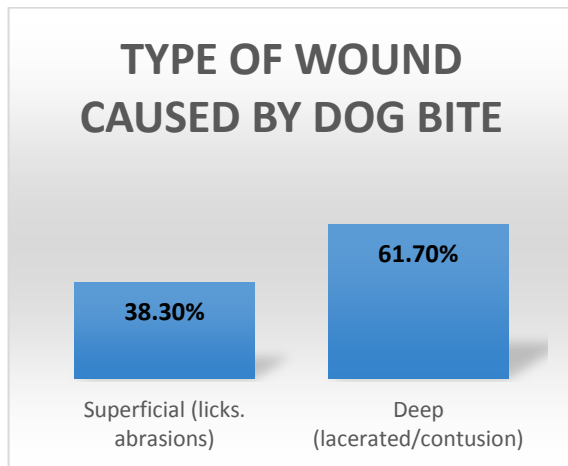
Graph 6. Types of animals that bite patients health care workers



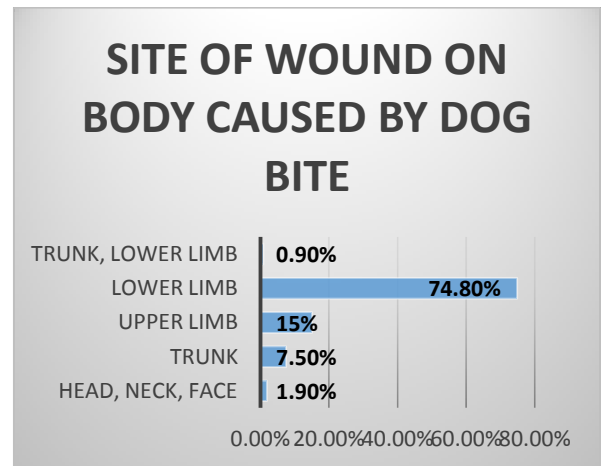
Graph 7. Place of exposure to dog bite



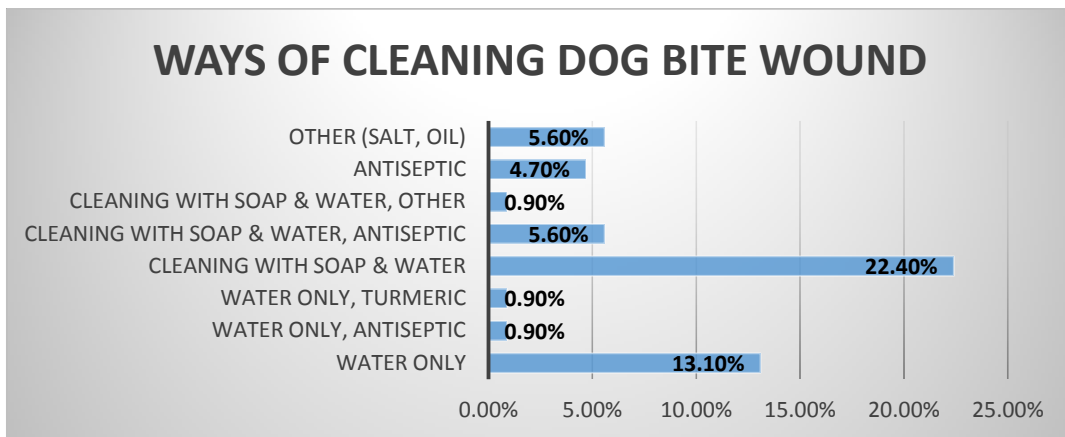
Graph 8. Category of wound cause by dog bite



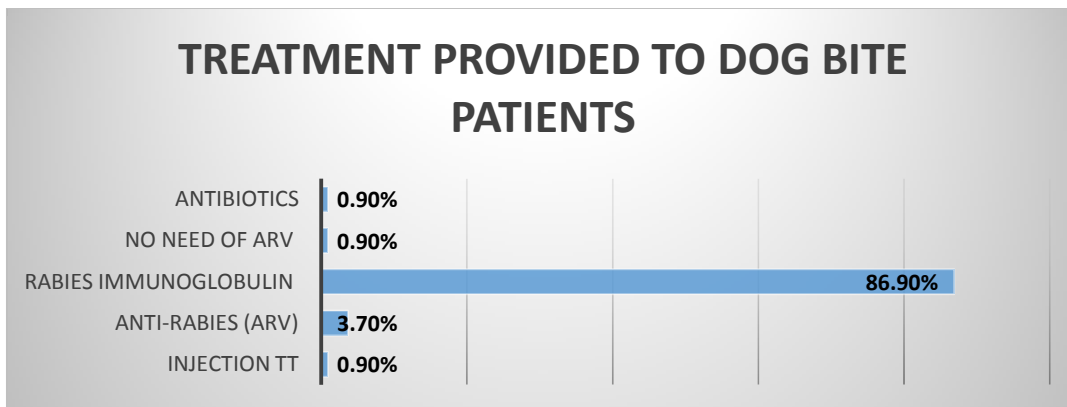
Graph 9. Type of wound cause by dog bite



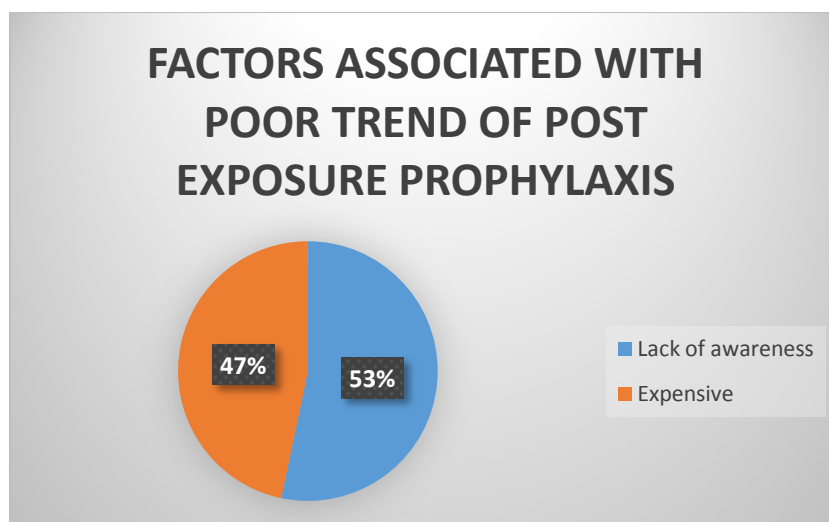
Graph 10. Site of wound on body cause by dog bite



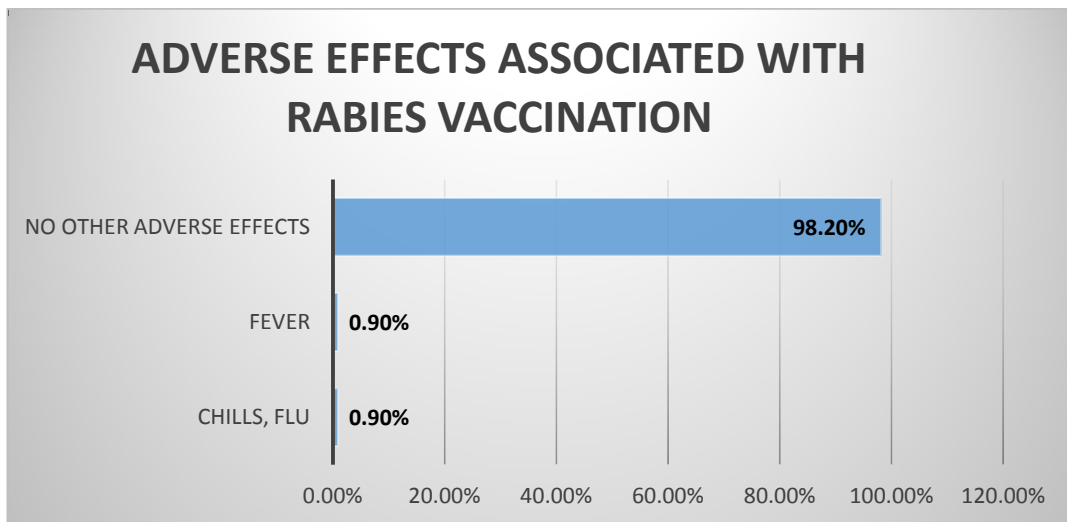
**Graph 11. Ways of cleaning dog bite wound**



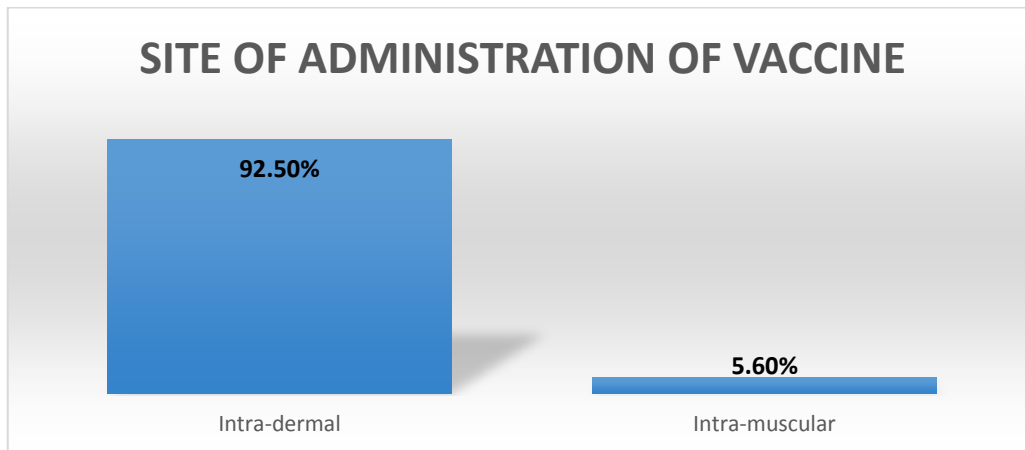
**Graph 12. Treatment provided to dog bite patients**



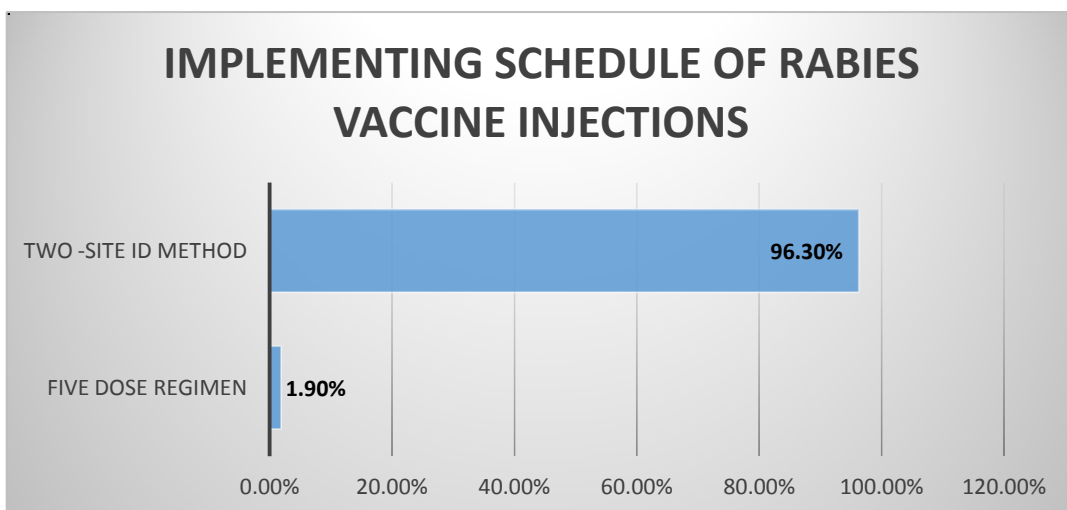
**Graph 13. Factors associated with poor trend of post exposure prophylaxis**



**Graph 14. Adverse effects associated with rabies vaccination**

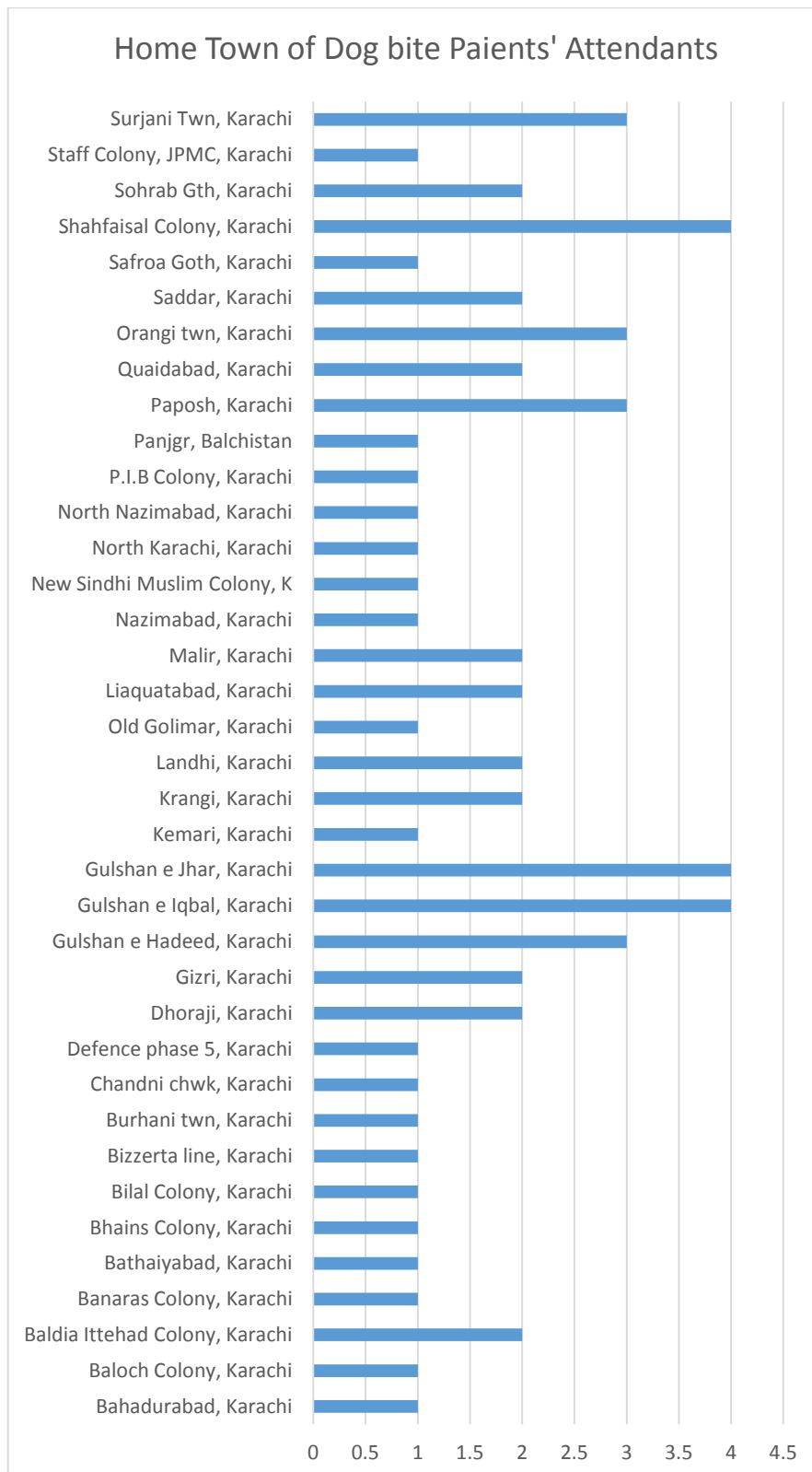


**Graph 15. Site of administration of vaccine**



**Graph 16. Schedule for implementation of rabies vaccine**

**KAP (KNOWLEDGE, ATTITUDE & PRACTICE) QUESTIONNAIRE REGARDING RABIES**



**Fig. 1. Home location of Patients attendants**

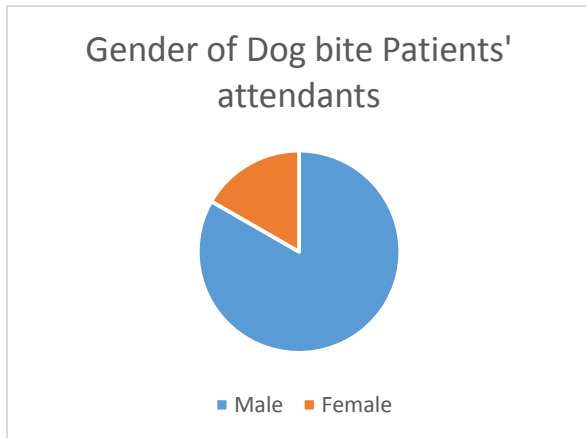


Fig. 2. Gender of Patients attendants

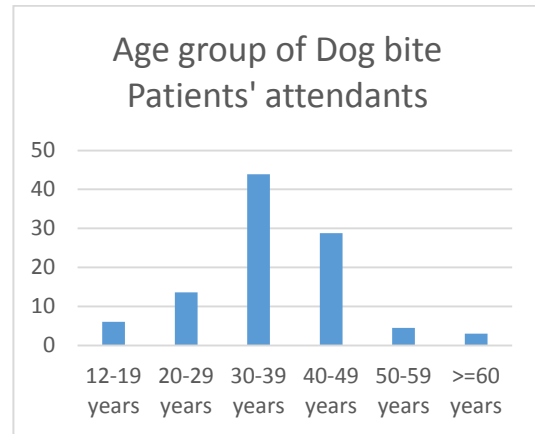


Fig. 3. Age-group of Patients attendants

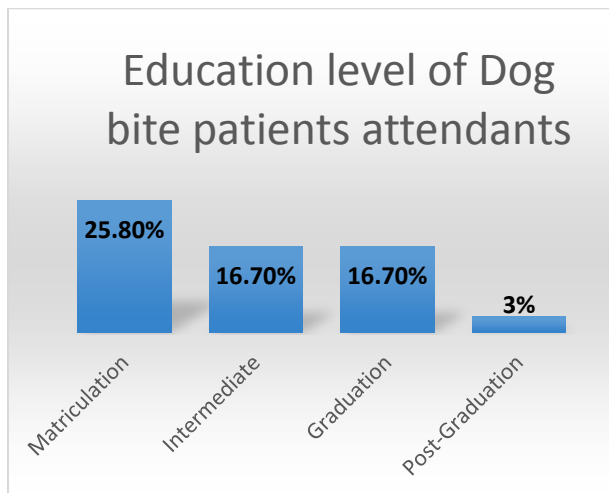


Fig. 4. Education level of Patients attendants

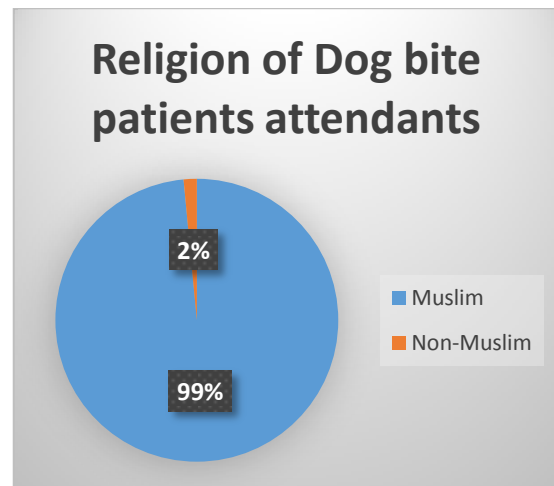


Fig. 5. Religion of Patients attendants

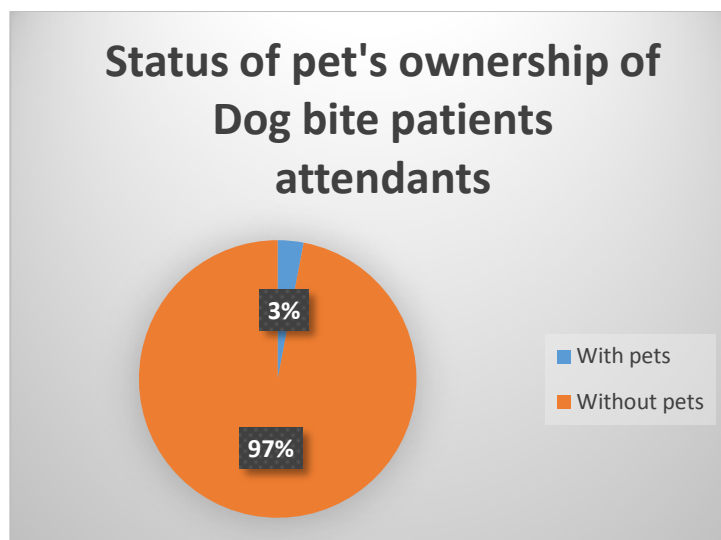
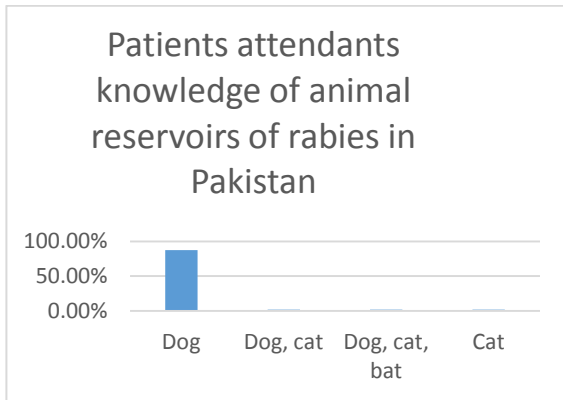
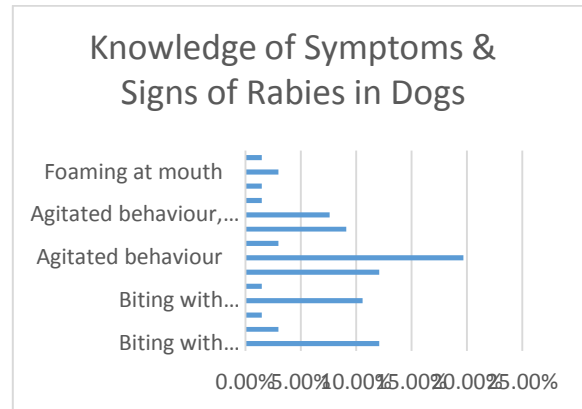


Fig. 6. Status of pet's ownership of Patients attendants

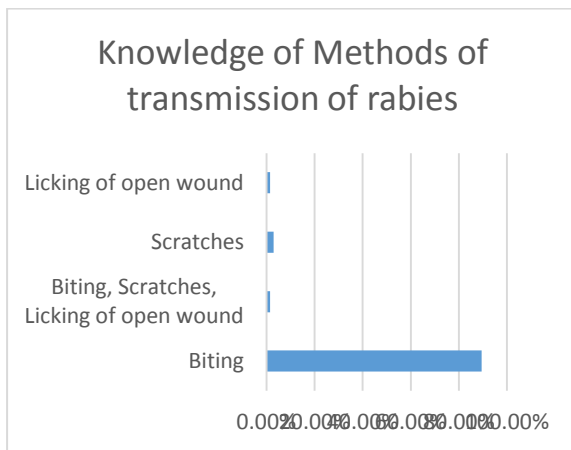




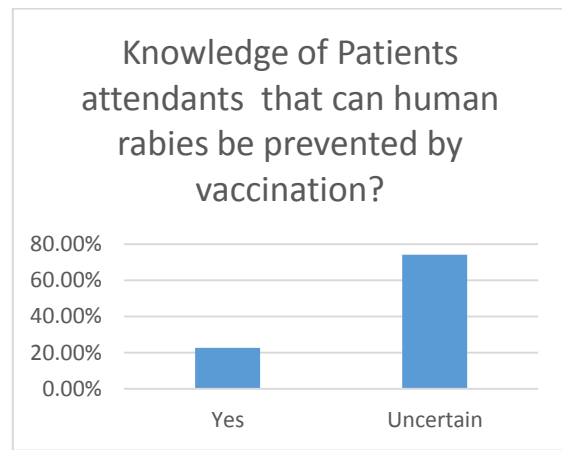
**Fig. 7. Animal reservoirs of rabies in Pakistan**



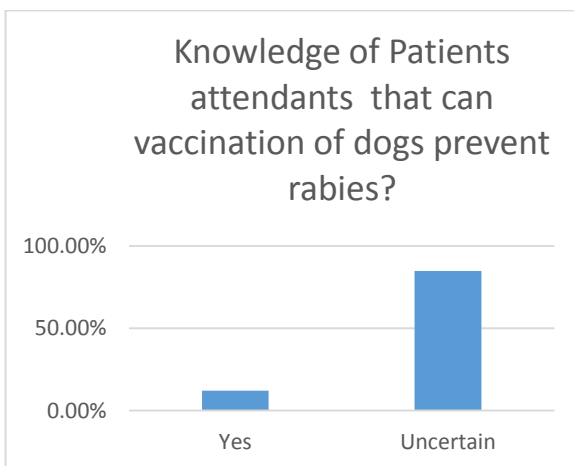
**Fig. 8. Symptoms and signs of rabies in dogs**



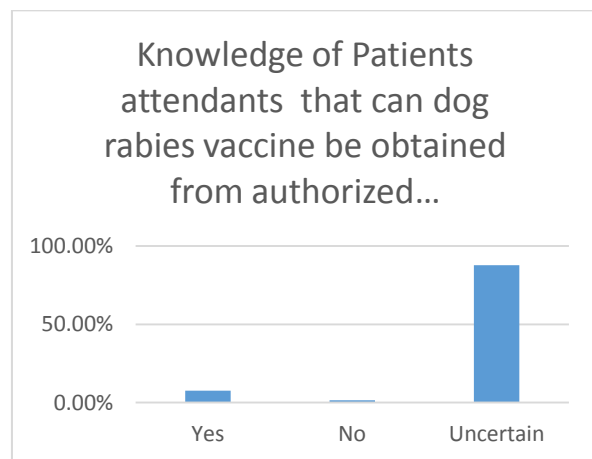
**Fig. 9. Methods of transmission of rabies**



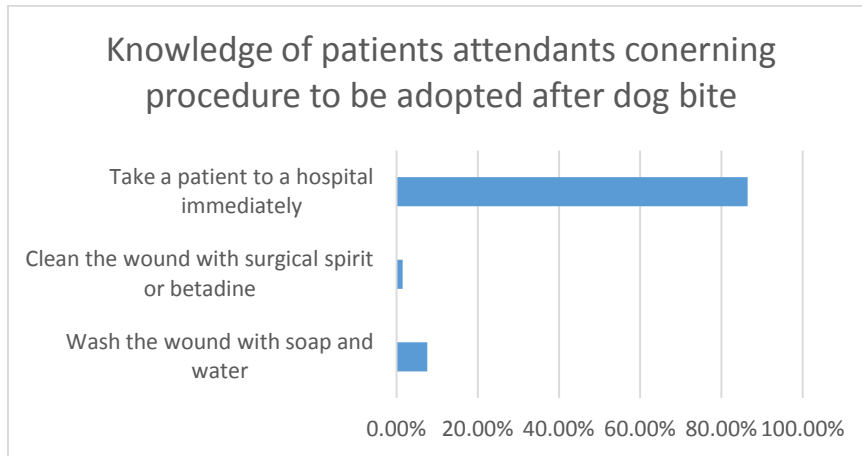
**Fig. 10. Can human rabies be prevented by vaccination?**



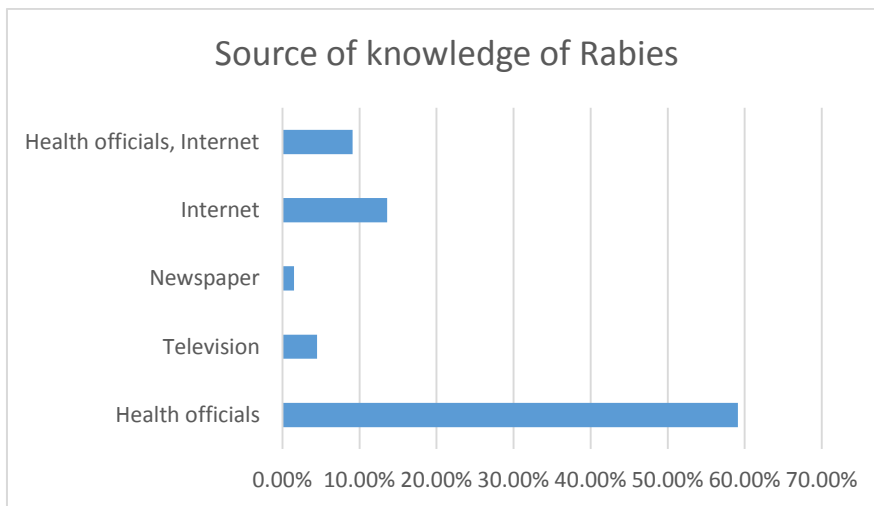
**Fig. 11. Can vaccination of dogs prevent rabies?**



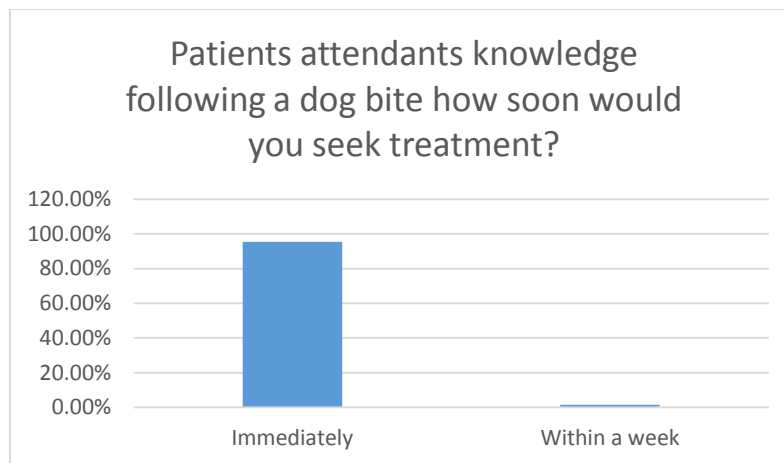
**Fig. 12. Can dog rabies vaccine be obtained from authorized government veterinary offices?**



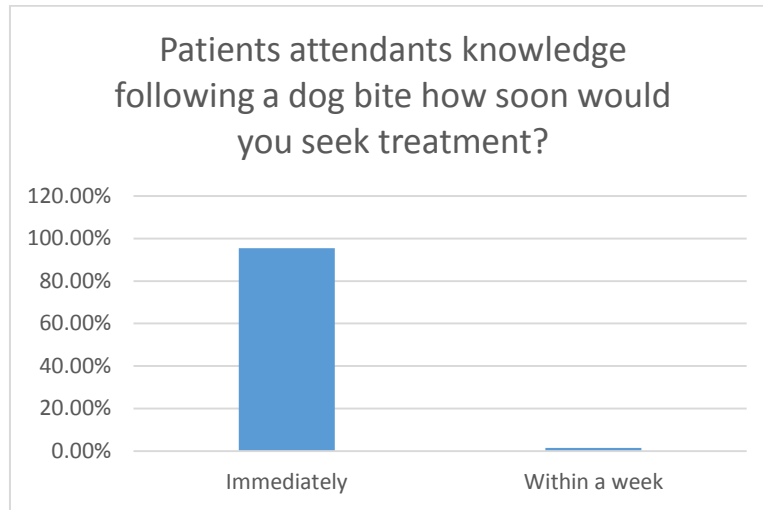
**Fig. 13. The following procedure should be adopted after a dog bite**



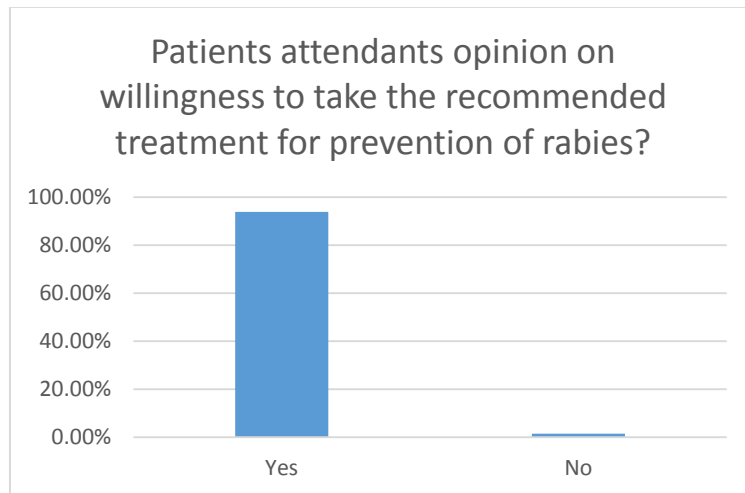
**Fig. 14. Sources of information**



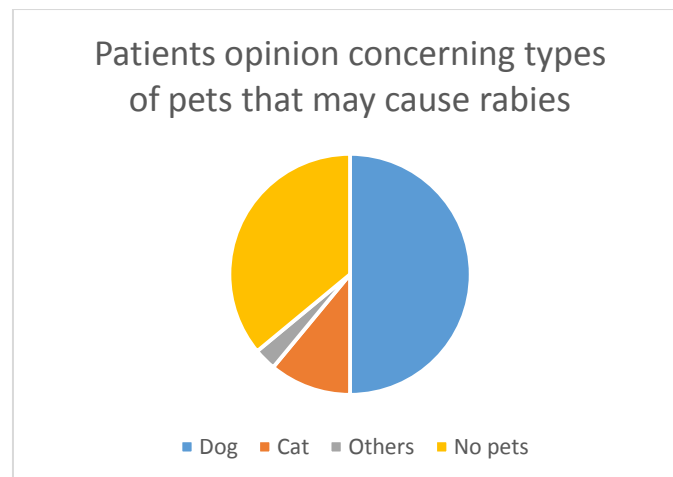
**Fig. 15. Following a dog bite how soon would you seek medical advice?**



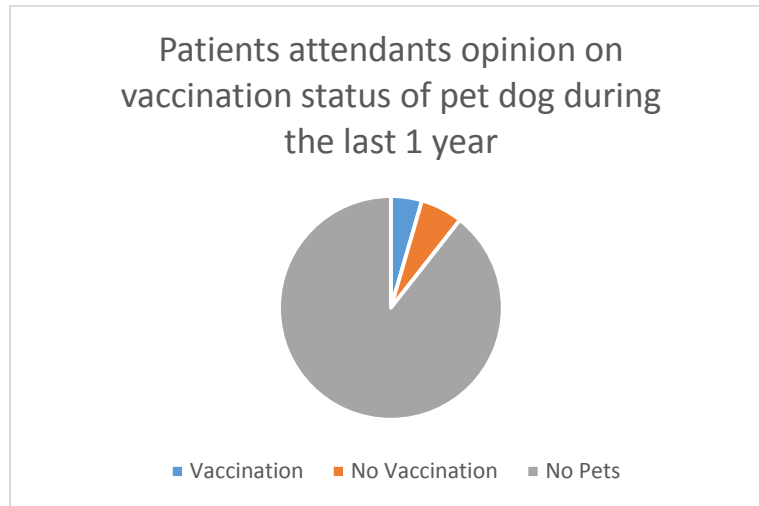
**Fig. 16. Following a dog bite from whom would you seek treatment**



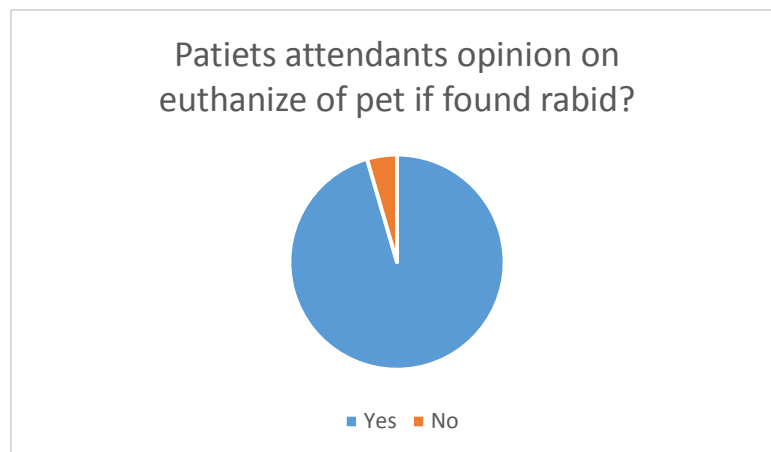
**Fig. 17. Are you willing to take the recommended treatment for prevention of rabies?**



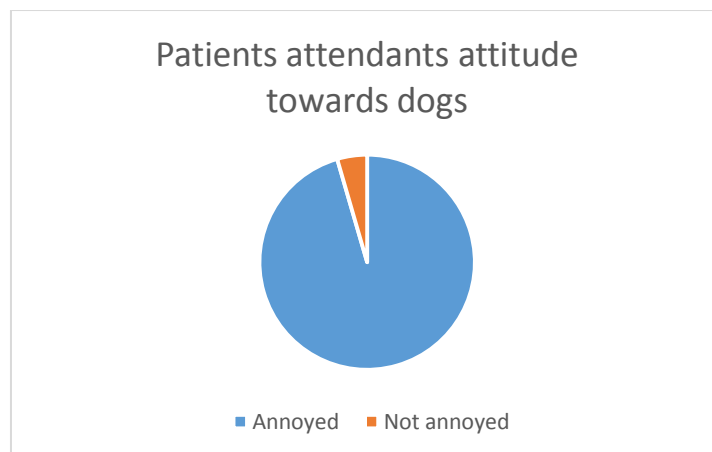
**Fig. 18. Type of pet**



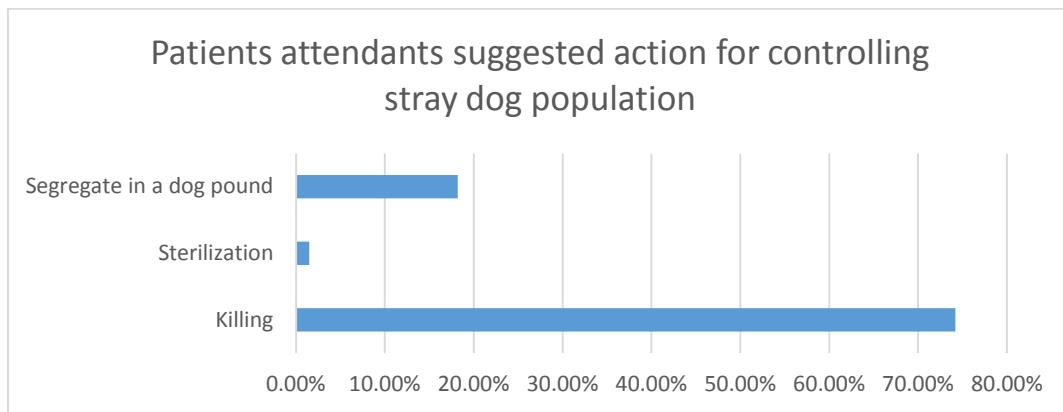
**Fig. 19. Vaccination status of pet dog during the last 1 year**



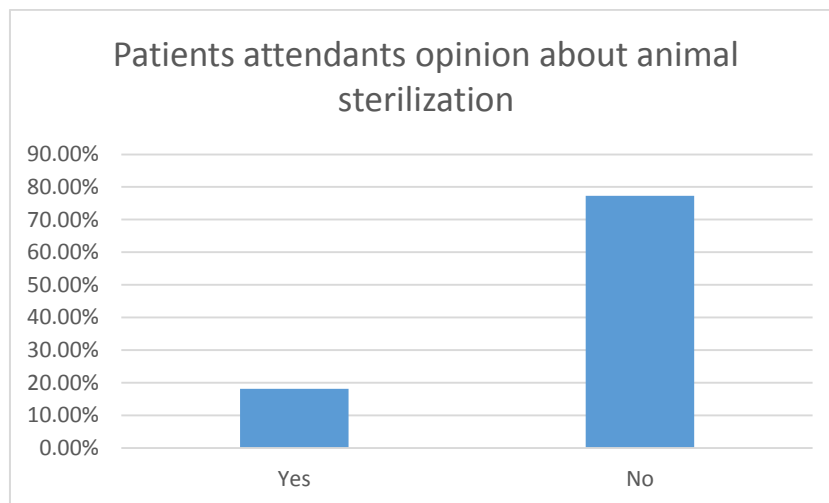
**Fig. 20. Would you euthanize your pet if found rabid**



**Fig. 21. Annoyed with stray dogs**



**Fig. 22. Actions suggested for controlling stray dog population**



**Fig. 23. In favour of animal sterilization**

#### 4. DISCUSSION

Our research study was in confirmation with Yalamebrat et al. 2016 that community lack of awareness [7–8].

It was observed that most of those respondents did not vaccinate their pets against rabies. This finding was consistent with findings of prior KAP surveys in India, Ethiopia, and Grenada [2,8-9]

One of the critical findings of this survey is that the majority of the respondents revealed that they did not seek urgent medical care following a dog bite, consistent with similar studies on rabies in Pakistan [10].

It was also witnessed that many of our respondents were not aware of rabies disease and its deadly nature despite many of them being aware of the clinical signs associated with rabies

is a finding similar to previous studies in the Philippines, Bangladesh, and Tanzania [4,11-12].

The awareness may lead to change in attitude of the people who have close contact with their unvaccinated dogs. The attitude toward dog bite and subsequent wound management can be improved if the population are aware of the risks associated with it. Wound cleaning after a dog bite is a crucial step to prevent rabies disease. Many of the respondents in the survey were not aware of the significance of proper wound management of dog bite immediately after it takes place. Improper wound management instantly after a dog bite and seeking no medical attention inevitably results in death if the animal is rabid, which could be prevented through this essential step in Pakistan [13]. Significantly less number of people in Pakistan immediately seek hospital care after dog bite in comparison to Bhutan, Tanzania, Sri Lanka, and Ethiopia

[2,4,14 -15]. This may be the causative factor in the number of deaths associated with rabies in Pakistan.

It is perceived that some people look for home remedies to cure rabies instead of visiting hospitals. The practice of pursuing home remedies for possible rabies patient is also reported in Africa and India [16–17].

Rabies is increasingly claiming deaths which generate public outcry, mostly due to painful death but also due to unavailability of rabies vaccine. Pakistan has poor health care infrastructure, as it is seen that there are only two rabies management centers in metropolitan city of Karachi in Sindh Province, moreover, these centers also serve people from the interior of Sindh and Baluchistan province, a vast area of southern Pakistan. These centers record over 20,000 dog bites cases annually [5].

According to World Health Organization, 45% of the human rabies global burden is contributed by the SAARC region (South Asian Association for Regional Cooperation) includes eight countries; Afghanistan, Bangladesh, Bhutan, India, Maldives, Nepal, Pakistan and Sri Lanka [18].

According to the research work carried by Sultan and Khan (2013) Pakistan has one of the world's highest tolls of human rabies, having an estimated cases ranged from 2000–5000 human cases/year [19].

The rabies endemic countries in South Asia are classified into three groups according to their respective disease burden. It is either high (Pakistan, India and Bangladesh), medium (Bhutan, Nepal and Sri Lanka) or low (Afghanistan) [20].

In Pakistan, just in the city of Karachi, the estimated population having rabies is 9 per million [21].

Each day on average 25 to 30 new cases of dog-bites are admitted in the hospitals in Sindh, Punjab, Khyber Pakhtunkhwa and Baluchistan. They are included in high risk areas for rabies as categorized by National rabies control program of Pakistan [22].

A study of rabies awareness in eight Asian countries (Indonesia, China, India, Philippines, Pakistan, Thailand, Sri Lanka, and Bangladesh) indicated that respondents obtained most of their

information pertaining to rabies and its prevention from their relatives or neighbors [23].

The study conducted by Khan et al. (2019) revealed that participants in the study exhibited limited knowledge of rabies and unreliable attitude and practices with respect to the prevention and control of disease. It was witnessed that those people who were aware of rabies had good knowledge and attitude, but poor practices towards coping with it [24].

## 5. CONCLUSION

This research work covered the gap analysis and observed that Karachitties needs to be given awareness sessions in the form of educational seminars and workshops to protect themselves from dog bite; development of rabies and the complication associated with it. Along with it practical implementation on the policy of eradication of rabies by 2030 needs to be done in context of vaccination of dogs as well as their sterilization to gain control over the ever-growing stray dogs population.

## CONSENT

Informed consent was taken from patients and the attendants before taking interview.

## ETHICAL CONSIDERATIONS

The study was approved by the Institutional Review board of Basic Medical Studies Institute, Jinnah Post graduate Medical Centre - Karachi.

## COMPETING INTERESTS

Authors have declared that no competing interests exist.

## REFERENCES

1. Organization WH. WHO expert consultation on rabies: second report, vol. 982: world health Organization; 2013.
2. Digafe RT, Kifelew LG, Mechesso AF. Knowledge, attitudes and practices towards rabies: questionnaire survey in rural household heads of Gondar Zuria District, Ethiopia. *BMC Res Notes*. 2015;8(1):400.
3. Tschopp R, Bekele S, Aseffa A. Dog demography, animal bite management and rabies knowledge-attitude and practices in

- the Awash Basin, Eastern Ethiopia. *PLoS Neglected Tropical Diseases*. 2016;10(2): e0004471.
4. 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;8(12):e3310.
  5. Wasay M, Malik A, Fahim A, Yousuf A, Chawla R, Daniel H, Rafay M, Azam I, Razzak J. Knowledge and attitudes about tetanus and rabies: a population based survey from Karachi, Pakistan. *J Pak Med Assoc*. 2012;62(4):378.
  6. Garg S, Basu S, Dahiya N. A review of current strategy for rabies prevention and control in the developing world. *Indian J Comm Health*. 2017;29(1):10-16.
  7. Yalembrat N, Bekele T, Melaku M. Assessment of public knowledge, attitude and practices towards rabies in Debark Woreda, North Gondar, Ethiopia. *Journal of Veterinary Medicine and Animal Health*. 2016;8(11):183-192.
  8. Glasgow L, Worme A, Keku E, Forde M. Knowledge, attitudes, and practices regarding rabies in Grenada. *PLoS Negl Trop Dis*. 2019;13(1):e0007079.
  9. Tiwari HK, Vanak AT, O'Dea M, Gogoi-Tiwari J, Robertson ID. A comparative study of enumeration techniques for free-roaming dogs in rural Baramati, district Pune, India. *Frontiers in Veterinary Science*. 2018a;5. Available:<https://doi.org/10.3389/fvets.2018.00104>.
  10. Khan A, Ayaz R, Mehtab A, Naz K, Haider W, Gondal MA, Umer M, Afzal MI, Shah NA, Afzal MS. Knowledge, attitude & practices (KAPs) regarding rabies endemicity among the community members, Pakistan. *Acta Trop*. 2019;200:105-156.han et al. 2019
  11. Davlin S, Lapid S, Miranda M, Murray K. Knowledge, attitudes, and practices regarding rabies in Filipinos following implementation of the Bohol rabies prevention and elimination Programme. *Epidemiol Infect*. 2014;142(7):1476–85.
  12. Hossain M. Study on knowledge, attitude & practice about rabies & pet animals among school children in Bangladesh. *J Microbiol Exp*. 2017;4(1):1–15.
  13. Ahmed, Touseef et al. Knowledge, attitude and practice (KAP) survey of canine rabies in Khyber Pakhtunkhwa and Punjab Province of Pakistan, Dryad, Dataset; 2020. Available: <https://doi.org/10.5061/dryad.xsj3tx9ch>
  14. Matibag GC, Kamigaki T, Kumarasiri PV, Wijewardana TG, Kalupahana AW, Dissanayake DA, De Silva DN, Gunawardena GPDS, Obayashi Y, Kanda K. Knowledge, attitudes, and practices survey of rabies in a community in Sri Lanka. *Environ Health Prev Med*. 2007;12(2):84–9.
  15. Penjor K, Tenzin T, Jamtsho RK. Determinants of health seeking behavior of animal bite victims in rabies endemic South Bhutan: a community-based contact-tracing survey. *BMC Public Health*. 2019;19(1):237.
  16. Dabuma T, Kabeta T, Mengist H. Assessment of basic knowledge, attitude and practice of community on rabies and retrospective survey in and around ambo town, west Shoa zone of Ethiopia. *J Med Microb Diagn*. 2017;6(263):2161–0703.1000263.
  17. Singh U, Choudhary S. Knowledge, attitude, behavior and practice study on dog-bites and its management in the context of prevention of rabies in a rural community of Gujarat. *Indian J Community Med*. 2005;30(3):81.
  18. WHO. Workshop on Enhancing Progress Towards rabies Elimination 'Zero by 30' in the SAARC Region, 26–28, June 2019. Kathmandu, Nepal; 2019. Available:<http://www.searo.who.int/entity/rabies/workshop-enhancing-progress-towards-rabies-elimination/en/>.
  19. Sultan F, Khan A. Infectious diseases in Pakistan: a clear and present danger. *Lancet*. 2013;381(9884):2138-2140.
  20. Chowdhury FR, Basher A, Amin MR, Hassan N, Patwary M. Rabies in South Asia: Fighting for Elimination. *Recent Patents on Anti-Infective Drug Discovery*. 2015;10(1). DOI:10.2174/1574891X10666150410130024.
  21. Nanayakkara S, Jean S, Smith JS, Rupprecht CE. Rabies in Sri Lanka: Splendid Isolation. *Emerging Infectious Diseases*. 2003;9(3):368 - 371.
  22. Yousaf MZ, Qasim M, Zia S, Khan MR, Ashfaq UA, Khan S. Rabies molecular virology, diagnosis, prevention and treatment. *Virology Journal*. 2012;9:50.

23. Sor S, Higuchi M, Sarker MAB, Nobuyuki Hamajima N. Knowledge of rabies and dog-related behaviors among people in Siem Reap Province, Cambodia. *Tropical Medicine and Health*. 2018;46:20. Available:<https://doi.org/10.1186/s41182-018-0102-0>
24. Khan A, Ayaza R, Mehtab A, Naz K, Haider W, Gondala MA, Umer M, Afzal MI, Shah NA, Afzal MS, Yayi G, Ahmad KS, Ahmed H. Knowledge, attitude & practices (KAPs) regarding rabies endemicity among the community members, Pakistan. *Acta Tropica*. 2019;200:105156.

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