

FREQUENCY AND RECOMMENDATION TO CONTROL DOG BITE INJURIES IN ISLAMABAD, PAKISTAN

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ABSTRACT

Dogs have the longest association with man. Management of dogs is one of the neglected issues in the Pakistan which took many human lives due to disease and injuries caused by dogs. The purpose of this qualitative cum quantitative research study was to estimate the dog bite frequency reported in NIH (National Institute of Health) Islamabad Pakistan and provide recommendation to reduce these cases. Five years (2005-2010) dog bite data were collected from Pakistan biggest vaccine manufacture institution (NIH). The data were analyzed according to age and gender of patients. Total 4037 dog bite cases were reported in five years. The frequency of cases increased from 313 to 827 (673 ± 229) per year. Lowest number of cases were recorded in 2005 ($n=313$) while highest in 2007 ($n=946$) with increase of 16 %. A higher number of males were reported injured than female. Dog bite frequency was found higher in the patients of 11 to 20 years of age and decreased with increase in age groups. Dog bite is preventable injury and increased in each year. Pakistan socioeconomic factors, education level, cultural life style is different and we have to implement dog bite control strategies in accordance with them. The chances of dog bite cases will be reduced if given recommendation fulfilled.

Keywords: Dog Bite, Stray Dogs, Dog Management & Pakistan

INTRODUCTION

Dogs play vital roles in human societies. Generally, dog population density rises with the human population (Butler & Bingham 2000). In this regard, increasing numbers of unwanted, unhealthy and unvaccinated dogs are found in many countries (Reese, 2005). Injuries due to these dogs can give rise to a series of human and animal health and welfare concerns not only in urban spaces but in human habitats. Throughout many developing countries, a large population of dogs roams freely in human community and breed in an uncontrolled manner. It is estimated that human dog bite ratio of 7:4 in urban and 14:3 in rural areas in Asia (Knobel, 2005). This is especially the case in developing countries like Bangladesh (Hossain, Bulbul, Ahmed, Ahmed, Salimuzzaman, Haque, Ali, Hossain, Yamada, Moji & Nishizono, 2011), India (Ichhpujani, Mala, Veena, Singh, Bhardwaj, Bhattacharya, Pattanaik, Balakrishnan, Samnpath & Gandhi, 2008) and Pakistan (Zaidi, Labrique, Khowaja, Farrukh, Irani, Salahuddin & Khan, 2013). In Pakistan, dogs are kept as a pet by significant percentage of people (Jafri & Rabbani, 1999). According to World health organization (WHO), more than 1.5 million dog bites take place each year in Pakistan (WHO,

1996; Wilde, Khawplod, Khamoltham, Hemachudha, Tepsumethanon, Mitmoonpitak & Sitprija, 2005). Children are 3 to 5 times more likely to experience dog bites than adults (Rezaeinasab, Rad, Bahonar, Rashidi, Fayaz, Simani, Haghdoost & Rad, 2007). Patients injured from dog bite are treated with vaccine (Sheep brain vaccine) prepared by National Institute of Health Islamabad (NIH).

WHO reported 10 million people bitten by animals in each year and dogs are mostly the cause (Rezaeinasab, 2007). Dogs are the most important reservoir of rabies, with dog bites being the primary cause of 96% of human rabies cases in the South-East Asia Region (SEAR) (WHO, 1996). Many cities of Pakistan the number of rabies increasing consistently. The incidence of rabies in Karachi only is estimated to be 9 million populations (Parviz, Luby & Wilde, 1998). Nearly 150,000 have to succumb to death because of developing rabies. While in three allied hospitals in town and tehsil headquarters hospitals in Rawalpindi district receive more than 100 dog-bite cases every month and the number is continuously on the rise (Qasim, 2010). In the developing countries, dog control measures have not been effective and canine rabies in many countries is increasing and spreading (Kitala, McDermott, Kyule, Gathuma, Perry & Wandeler, 2001). The present study was aimed to identify the frequency of dog bite cases registered in NIH from 2005 to 2010. The data was analyzed according to age groups and gender. In this regard, the recommendations were given according to cultural and socioeconomic factors of country to decrease dog bite rate.

MATERIAL AND METHOD

The current quantitative research study was conducted on the data collected from National Institute of Health (NIH) Islamabad. The data were recorded carefully from the hospital record. The recorded data such as numbers of persons who were bitten by dogs and other important variables related to them such as age groups and genders of referral human injured patients were analyzed. NIH is the largest health institute of Pakistan which produced bacterial vaccines, viral vaccines and anti-sera against snake venoms and rabies virus. People from different cities came directly to NIH for vaccination after dog injury. An amount of Rs. 93.753 million revenue is generated through sales of vaccine and anti-sera which is a major contribution towards the NIH budget (NIH, 2016).

RESULTS AND DISCUSSION

Reported dog bite cases were 4037 in NIH (Fig.1). Number of cases increased with each year (673 ± 229). Lowest number of dog bite cases were recorded in 2005 (313) and highest in 2007 (946) with the increase of 16.12%. Dog bite frequency was found higher in the patients of 11 to 20 years of age (Figure 2) and decreased with elder age groups. Significantly, higher number of males were reported injured by the dog bite than female ($p < 0.05$; Figure 3). Percentage frequency of dog bite showed similar trend with age groups of male and female (Table 1).

Frequencies

Figure 1. A contentious increase in dog bite frequency among five years (2005-2010) reported in NIH Islamabad.

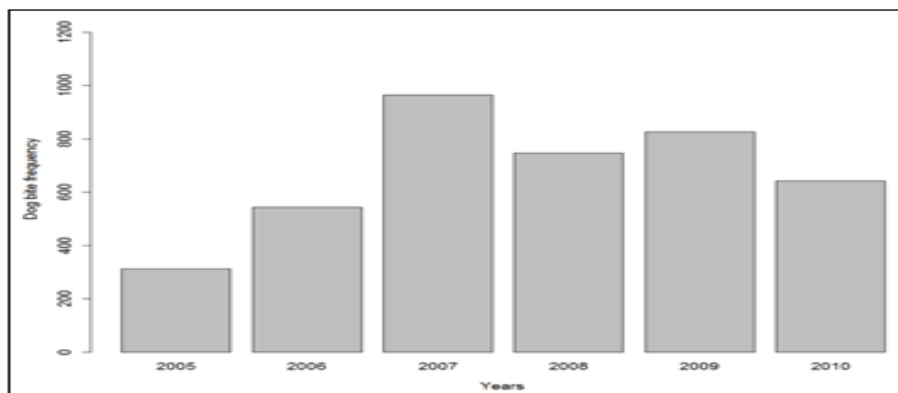


Figure 2. Prevalence of dog bite frequency among different age groups in five years (2005-2010). An inverse relationship were observed between dog bite cases and age groups.

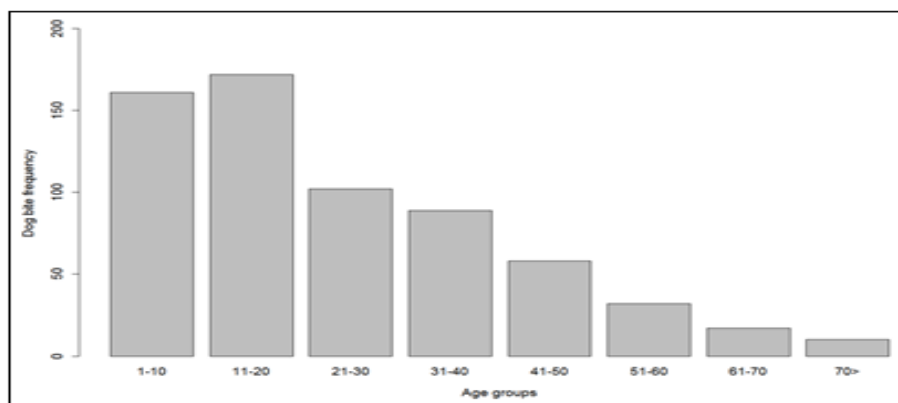
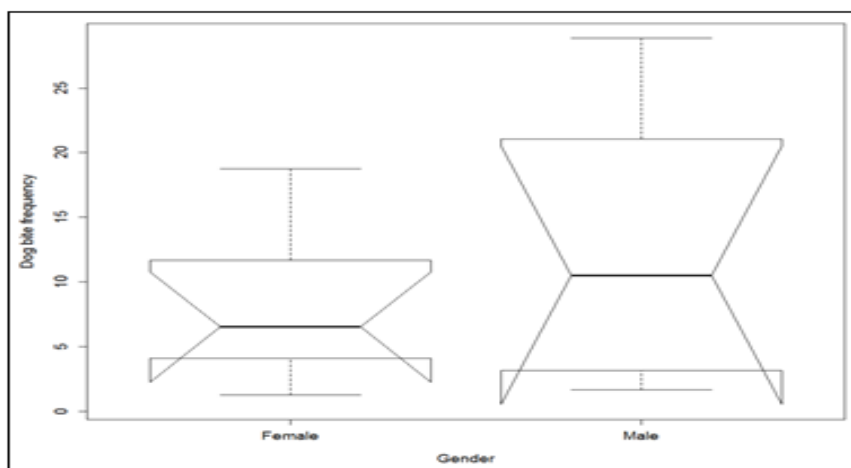


Table 1. Percentage dog bite frequency among different age groups of male and female (2005-2010).

Age group	Male %	Female %
1-10	26.53	11.19
11-20	28.84	18.74
21-30	15.58	7.16
31-40	12.42	5.89
41-50	8.63	12.21
51-60	4.00	5.89
61-70	2.32	2.32
70 >	1.68	1.26

The frequency of dog bite cases was getting increased from 2005 to 2010. Dog injuries were found high in children and teenagers. People of this age like to live more adventurous life and spend most of their time outside home as a result their chance of impact were high (Chawla & Reece, 2002). Due to cultural design of Pakistan, the movement of adult females is restricted as compare to males. During early life both male and female have great interaction with outside world so chance of getting bitten by dog is high but as time passes, female are more restricted to their home.

Figure 3. A significant difference between dog bite frequencies among two genders in the year 2005-2010 ($p < 0.05$).



Recommendations

Considering the socio-economic, cultural and regional factors of a country, following recommendations expected to cause reduction in dog bite frequency.

- Man-dog relation was found about ten to twelve thousand years ago (WHO 1990). Complete reduction of dogs from society is not possible. Because dog ecology is linked with human activity, so management of dog population must be accompanied by changing the human behavior. Three principals should be adopted to control dog population i.e. responsible dog ownership, control dog killing and public education.
- Religious people often influence local community. As literacy rate of Pakistan is low (58%) so instead of posting banners on roads and on websites, authorities should engage religious people in campaign against population control of dogs. People will listen them more carefully and respond effectively.
- Dog bite injuries can only be reduced through community effort, involving both veterinary and public health officials. These officials should communicate with the local people. They

should own their responsibility. When patients came treatment then officials should gave them information and possible way to reduce this.

- Usually dog communities were found where sufficient food is available without the active involvement of humans in feeding dogs (WHO 1990). If house hold waste get controlled both in rural and urban areas, then population of free roaming dogs can be decreased.
- Instead of making large quantity of vaccine and earn millions of dollar from it, focus should be on the reduction of cause for which people get injured and require such vaccine. Animal Birth Control (ABC) program should be practically implemented in which stray dogs are captured, sterilized, vaccinated, and then released back (Farooqi & Hayat, 2009).
- Proper surveillance should be done when patient register in hospital and authorities should undertake the area where high rate of dog bite occur.
- Each union council should own his responsibility to tell people that dog management should be done in order to save their families from serious diseases like rabies. High dog bite rate in young male can be reduced by dog management awareness campaign in schools and colleges.
- Most of health care centers are in the main cities and many people prefer to go to the traditional healers (Dodet, Goswami, Gunasekera, Guzman, Jamali, Montalban, Quiambao, Salahuddin, Sampath & Tang, 2008). Instead of criticizing local healers, authorities should approach these people. Local healers already gained community trust so authorities use them to convey their message to people.
- Everything is linked with responsibility and ownership. No campaign, educational awareness and protective measures are successful unless community did not own its responsibility. Lack of appreciation of these issue is one of main reason why efforts to control dogs in developing countries often fail.
- The solution is not the inhuman killing of dogs, but to focus on surveillance, data collection, animal registration, vaccination of pet dogs, engaging religious people to play their role to community.

CONCLUSION

Pakistan major population settled in the rural regions with low basic social facilities. Most people rely on the NIH hospital for treatment. The rate of injuries due to dog bite increased every year. This could be specifically attributed to the increasing trend of human mortality due to increased rabies in Pakistan. Educating rural community and involving local religious people can make positive impact on reduction of dog bite cases. Due to low data surveillance and statistics, the death rate due to dog bite injuries is unknown. If our recommendations, which are based on the local population structure took under consideration then the injuries rate can be reduced.

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