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Awareness on Rabies among People Receiving Rabies Vaccine in Kathmandu

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Abstract

Background: Rabies vaccine preventable viral disease which occurs in more than 150 countries and territories. Rabies virus is still prevailing worldwide in spite of many necessary measures to control and eradicate the disease. This research entitled "Awareness on Rabies among people receiving Rabies Vaccine in Kathmandu. **Objective**: The objective of the study was to assess awareness on Rabies among people receiving Rabies vaccine in Kathmandu. This study was conducted in OPD of Sukraraj Tropical and Infectious Disease Hospital (STIDH) at Teku, Kathmandu. **Methods:** A descriptive cross-sectional study design was used with non-probability purposive sampling technique The sample size was 104. Structured interview schedule was used for data collection. The obtained data was coded and analysed by using descriptive and inferential statistics. **Findings**: The finding of the study showed that only 14.4 percent had high level of awareness whereas 45.2 percent had low level of awareness. The study revealed that most of the respondents had heard about rabies. The main source of

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information was book 46.2 percent. Only 32.7 percent of the respondents mentioned that rabies is a highly fatal viral infection. Likewise, fear of water, air and light was most common sign and symptoms mentioned by (68.3) percent of the respondent. Majority (87.5%) of the respondents reported that rabies is a preventable disease. There was significant association between the level of awareness and previous history of bite (p<0.029). **Conclusion:** This study concluded that respondents had low awareness regarding rabies. So, it is important to increase awareness on rabies through Information, Education and Communication (IEC) materials regarding rabies. **Novelty:** This study might be helpful for concerned authorities of the hospital and other local organizations to conduct health activities regarding rabies and its prevention.
Keywords: Rabies, Vaccine, Awareness, Prevention

Introduction

Rabies is present on all continents, except Antarctica. Although it is preventable, approximately 59000 people die of rabies every year out of which, 45% prevails in South Asian Association for Regional Cooperation (SAARC) countries and the remaining deaths occur mainly in Africa, middle east and central Asia (Pal et al., 2021). This virus can infect all the animals of group Mammalian but dogs are the main source of human rabies deaths.

Animals bites or scratches can transmit rabies, via saliva. more than 29 million people worldwide receive a post-bite vaccination each year which prevent hundreds of thousands deaths by rabies(World Health Organization [WHO], 2021). Among eleven members in its WHO South East Asia (SEA) eight of the countries are endemic to rabies and more than 1 billion people being at risk of being infected by rabies (Gongal & Wright,2011).

Nepal is one of the endemic countries for diseases accounting for significant public health issues. Once clinical symptoms have developed, the disease can be fatal to both humans and animals (Pal et al., 2021). Based on available medical records, vaccine distribution trend and services was provided by private clinics, it is estimated that around 50,000 people seek post-exposure prophylaxis in Nepal (Department of Health Services & Epidemiology and Disease Control Division, Epidemiology and Disease Control Division, 2019).

Awareness on rabies and treatment seeking habits are critical for the prevention and control of the disease in human and animals which can be prevented through dog vaccination and in human rabies deaths can be prevented by cleaning wound with soap and water and immediate administration of post-exposure rabies vaccine (PEP) and infiltration of rabies immunoglobulin around the bite wound (WHO,2018).

Rabies is a fatal viral disease and a major burden in Asian rural area with an estimated over 35,000 human deaths per year. India alone accounts for nearly 60% of rabies deaths in Asia and 35% of deaths globally. In Nepal,

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around 500 animals and up to 32 human beings were lkilled in recent years. There was possibility of under-reporting of cases and demises. Around 30,000 livestock and 300,000 humans get vaccinated each year in Nepal as prophylactic measures (Panta et al., 2020).

In Nepal,the highest number of animal bites was reported in year 2077/78 while the lowest in year 2014/15. Irrespective of the total number of animal bites, dogs were responsible for more than 90% of the bites each year (Panta et al., 2020). According to the reports from Sukraraj Tropical and Infectious Disease Hospital (2020), 150 people receive anti-rabies vaccination each day, out of which 30 visits are at night.

A cross-sectional study conducted in Kathmandu, Nepal during March - April 2017 showed that that 91.25% have heard about rabies but14.37% did not know that rabies is a fatal. (Chaudhary & Dangi, 2021).

These studies showed that the respondents were somewhat aware regarding rabies and its prevention. However, their behaviour related to treatment seeking directs that there are some knowledge gaps for proper access community health facilities for rabies treatment and/or prophylaxis.

Also the global strategic plan of World Health Organization (WHO, 2019) has aims to decrease deaths from rabies to zero by 2030,for this the governmental and non-governmental activities should work together .So that is it can be reduced and achieve the goal by 2030.Rabies is a significant public health concern in Nepal but has received little research attention. Limited studies have led to unclear data on the disease. This study aims to assess the awareness of rabies among individuals receiving rabies vaccines, contributing to better prevention and control efforts .The objective of the study is assess awareness on rabies among people receiving rabies vaccine in Kathmandu

Methods and Materials

A descriptive cross sectional study design was used to assess the awareness on rabies among people receiving rabies vaccine in Kathmandu.The study was conducted in OPD of Sukraraj Tropical and Infectious Disease Hospital (STIDH) at Teku, Kathmandu. It is a public hospital especially designated for the treatment of tropical and infectious diseases established in 1993. The study population were people aged 18 and above visiting OPD to receive rabies vaccination who were willing to participate during data collection period.

Non- probability, purposive sampling technique was accepted to assess the awareness of rabies among people receiving rabies vaccines.

The sample size for this study was calculated using as :

sample size (n)= Z^2pq/d^2

Z= confidence interval at 95%=1.96

p= Prevalence of knowledge obtained from the study carried out among 107 attendees of anti rabies clinic of a teaching hospital, Jaipur (p) = 22.5%

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Structured interview schedule was prepared by the researcher herself to assess the awareness or rabies. The instrument was developed on the basis of objectives of the study, through extensive literature review and consultation with research advisor, subject experts and peers.
Interview schedule was classified into 2 parts: Questions related to background information of respondents and questions related to awareness on rabies. Each response was scored as 1 for 'yes' or right response and 0 for 'no' or wrong response. For multiple response questions, score '1' was given for each correct response and '0' for no response. Total score was 25. Score more than or equal to 80 percent was categorized as high level awareness, score more than or equal to 60 percent to less than 80 percent was categorized as moderate level awareness and score less than 60 percent was categorized as low level awareness. Validity of the instrument was maintained by extensive review of literature and consulting the research advisor and correction from expertise. Simple and Understandable language was used in the questionnaire for obtaining response from the respondents and direct leading questions was avoided. Questionnaire was developed in English language and translated into Nepali language then, back to back translation was done. Pre-testing of the instrument was done in 10% of the total sample size (i.e., 10% of 104 = 10) before finalizing the instrument to identify the accuracy, adequacy and completeness. Reliability of the test was measured using Cronbach's test. (α = 0.73)

Data Collection

After the acceptance of proposal, request letter for permission to collect the data from the study setting was obtained from Tribhuvan University, Institute of Medicine, Pokhara Nursing Campus. Then, formal permission for data collection was obtained from concerned authorities of Sukraraj Tropical Infectious Hospital. The objective of the research study was explained to the concerned authorities – Director and Matron.
Informed consent was obtained from all participants. Ethical considerations were followed by clearly explaining that participation was voluntary. Privacy was ensured by conducting interviews in a separate room, and confidentiality was maintained by not sharing the collected information with others.The researcher conducted face-to-face interviews from 9 am to 2 pm, with each interview lasting 15 to 20 minutes. About 10 to 15 participants were interviewed per day, and data collection was completed within two weeks.

Data Analysis

After collecting the data, it was checked and compiled manually on the same day. The data was then coded and entered into the Statistical Package for Social Sciences (SPSS) for analysis. Descriptive statistics, such as mean, frequency, and percentage, were used to analyze the background information. The chi-square test was used to find the association between background variables and the level of awareness. The study results were presented in tables.

Results

Table 1

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Background Information of the Respondents

n=104

Characteristics	Number	Percent
Age (in year)		
Less than 20	20	19.2
21-40	73	70.1
41-60	9	8.7
More than 60	2	2.0
Mean age ± SD 27.25 ± 9.657 years		
Gender		
Male	71	68.3
Female	33	31.7
Family type		
Nuclear	47	45.2
Joint	57	54.8
Educational level		
Illiterate	5	4.8
Basic	17	16.3
Secondary	33	31.7
Bachleor and above	49	47.1
Religion		
Hindu	80	76.9
Buddhist	18	17.3
Christian	3	2.9
Muslim	3	2.9
Ethnicity		
Brahmin	33	31.7
Chettri	15	14.4
Janajati	45	43.3
Dalit	5	4.8
Madhesi	6	5.8
Occupation		
Agriculture	2	1.9
Service	7	6.7
Homemaker	8	7.7
Labor	12	11.5
Business	29	27.9
Student	46	44.2
Pet at home	54	51.9
Previous history of bite	39	37.5

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Previous history of bite to family member	44	42.3
Taken rabies vaccine before	29	27.9

Table 1 reveals that, majority (70.1%) respondents belonged to 21 – 40 years of age group with the Mean age ± SD 27.25 ± 9.657 years. About 68.3 percent of the respondents were male. More than half of the respondents were of the respondents (54.7%) were living in a joint family. Majority of the respondents (76.9%) belong to Hindu whereas 43.3 percent belonged to Janajati. About 44.2 percent of the respondents were students.

Table 2
Source of information and dose of vaccine

n=104

Responses	**Number**	**Percent**
Source of information*		
Books	48	46.2
TV / radio	45	43.3
Friends	41	39.5
Health care provider	37	35.5
Others	21	20.2
Dose of vaccine		
First	36	34.6
Two	34	32.7
Three	33	31.7
Five	1	1.0

***Multiple Response**

Table 2 shows that about 46.2 percent of the respondents heard about rabies through book, followed by 43.3 percent from television/radio where 39.5 percent and 35.5 percent of the respondents had heard about it from friends and health care provider respectively.

Table 3
Awareness on Rabies and its sign and symptoms among the respondents

n=104

Correct Responses	**Number**	**Percent**
Rabies is a highly fatal viral infection that mainly spreads through bite from infected animals	34	32.7
Rabies is communicable	39	37.5
Rabies is not curable	47	45.2
Bat, dog and cat transmit rabies	80	76.9

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Rabies is spread through saliva	94	90.4
It takes one or two weeks to develop symptoms, if bit by rabid animal	30	28.8
Sign and Symptoms of rabies in human*		
Irritability or aggressiveness	34	32.7
Excessive salivation	36	34.6
Fever, headache	39	37.5
Weakness or paralysis	17	16.3
Fear of water, air and light	71	68.3
Brain is the organ affected	82	78.8
Rabies can cause death	101	97.1

***Multiple Response**

Table 3 shows that only 32.7 percent of the respondents knew that rabies is a highly fatal viral infection that mainly spreads through bite from infected animals spread through saliva whereas 37.5 percent of the respondents had said rabies is communicable disease. About 45.2 percent revealed that rabies cannot be cured. Majority of the respondents (76.9%) stated that rabies is transmitted through animal like bat, dog and cat. Likewise, most (90.4 %) of the respondents had said that rabies is spread through saliva. Only 28.8 percent of the respondents said that time to develop symptoms after bite of a rabid animal takes one to two weeks

Table 4

Awareness on Preventive measures and Vaccination of Rabies of the respondents

n=104

Correct Responses	**Number**	**Percent**
Rabies is preventable	91	87.5
Preventive measures*		
Vaccinate animals	98	94.2
Avoid contact with animals	36	34.5
Contact local animals officials or police if animals are roaming	48	46.2
Safely confine pet at home and supervise when outside	59	56.7
Will inform the animal department of the area, in case a stray rabid dog is found	89	85.6
Will wash bite with soap water and go to doctor in case of a bite from animal	86	82.7
Visit hospital after bite on the same day of bite	89	85.6
Immediately take vaccine	96	92.3

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Total 3 Dose of vaccine	96	92.3
Take vaccine on 1, 3 and 7 day of bite	76	73.1
Will take vaccination in future	104	100

***Multiple Response**

Table 4 shows that majority (87.5%) were aware that rabies can be prevented. Most (94.2%) respondents had said that vaccination of animals was the main preventive measures for prevention of rabies followed by confining and supervising the pets (56.7%). Majority (85.6%) of the respondents said that they would inform the animal department of the area in case they find rabid stray dog. Similarly, 82.7 percent of respondents stated that in case of a bite, they would wash the bite with soap water and go to doctor. Respondents who stated that they would visit hospital on the same day of the bite were 85.6 percent.

Table 5
Level of Awareness on Rabies among the respondents

n= 104

Level of Awareness	**Number**	**Percent**
High level (80 to 100%)	15	14.4
Moderate level (60 to 79%)	42	40.4
Low level (less than 60 %)	47	45.2
Mean a ± SD (16.13± 3.05)		

Table number 5 shows that, only 14.4 percent of the respondents had high level awareness and 40.4 percent had moderate level awareness. About 45.2% of the respondents had low level awareness on rabies. The total score was 25, with maximum score 22 and minimum score 6, with the mean score 16.13 (SD ± 3.05).

Table 6
Association between Level of Awareness on Rabies with selected Background Variables

n=104

Characteristics	**Level of Knowledge**		χ^2	**df**	***P*-value**
	High (%) to Moderate(%)	**Low (%)**			
Age group					
≤40	50 (53.8%)	43(46.2%)	0.387	1	0.534
>40	7(63.9%)	4(36.4%)			
Sex					
Male	36(50.7%)	35(49.3%)	1.521	1	0.217
Female	21(63.6%)	12(36.4%)			

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Religion					
Hindu	43(53.8%)	37(46.3%)	0.157	1	0.692
Not hindu	14(58.3%)	10(41.7%)			
Ethnicity					
Janajati	18(54.5%)	15(45.5%)	0.001	1	0.971
Other than janajati	39(54.9%)	32(45.1%)			
Occupational status					
Employed	29(50.0%)	29(50.0%)	1.224	1	0.269
Unemployed	28(60.9%)	18(39.1%)			
Educational status					
Literate	53(53.5%)	46(46.5%)	1.346	1	0.246
Illiterate	4(80.0%)	1(20.0%)			
Pet ownership					
Yes	27(50.0%)	27(50%)	1.048	1	0.306
No	30(60.0%)	20(40%)			
Previous history of bite					
Yes	16(41.0%)	23(59%)	4.785	**1**	**0.029**
No	41(63.1%)	24(36.9%)			
Family history of bite					
Yes	23(52.3%)	21(47.7%)	0.198	1	0.656
No	34(56.7%)	26(43.3%)			
Dose of vaccine					
One / First	22(61.3%)	14(38.9%)	0.883	1	0.347
More than one	35(51.5%)	33(45.2%)			

χ2 - chi square value ***df-degree of freedom*** ***p*- value significant when < 0.05**

Table 6 illustrates that there was no significant association between the selected background variables (age, sex, ethnicity, religion, educational status, occupational status, pet ownership, previous history of bite to family and dose of vaccination) and level of awareness. But there was association between awareness level and previous history of bite.

Discussion

The findings of the study have been discussed with reference to the objectives, literature review and with the findings of the other studies. This study was conducted to identify the level of awareness among people receiving rabies vaccine in Kathmandu and also to find the association between the selected background variables and level of awareness.

This study revealed that only 14.4 percent of the respondents had high level of awareness, 40.4 percent had moderate level of awareness and 45.5 percent had low level of awareness which is similar to the study conducted in Shri M.P. Shah Government Medical College, Jamnagar, Gujarat by Amrita et al., (2013) which contradicts with the study conducted in Sri Lanka by Gino et al., (2009) where higher knowledge about rabies was reported. The findings from this

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study differs from the study of Kapoor (2019) where 22.5 percent of the respondents had good level of knowledge, 56 percent had fair level of knowledge and only 21.5 percent had poor knowledge. This result is different from the study done in Ethiopia by Ali (2011) which showed that 75.2 percent of the respondents had moderate level of knowledge in rabies. This difference probably is explained by the lack of health education programs about rabies in Nepal.This study revealed that, the age distribution of the respondents ranged from 18 – 73 years with mean age 27.25 $\pm$ 9.657 years which was similar to the study conducted in Pakistan by Salahuddin (2011) where the mean age for participants was 24 + 17.2 years. Out of 104 respondents, 68.3 percent of respondents were male which was different than study done in Tanzania by Sambo et al., (2014) where more than half (55%) were female. Also in the study conducted by Dhand (2012) 64 percent of the respondents were female.

This study reveals that the major sources of information on rabies was book (46.2 %) where as in the study done in Jaipur by Kapoor et al., (2019) first source of information about rabies was hospital/ doctors/ health workers/ health professional which was 50.5 percent.

Similarly, this study showed that more than half (51.9%) of the respondents have a pet at their home. Hence, it shows that having a pet dog in the Home was a risk factor for receiving a dog bite. The study conducted by Ghosh (2016) also shows association between pet at home and bite (p<0.001).

In this study all the 104 respondents have heard about rabies. In addition, the study conducted in Kathmandu by Chaudhary and Dangi (2021) also showed that most (91.2%) of the respondents in the study areas have heard about rabies.

This study shows than only 2.9 percent of the respondents use ayurvedic medicines in case of a dog bite which is unrelated to the study conducted by Gosh et al., (2016) where more than half of the dog bite victims (59%) first sought treatment from traditional healers .

The current study showed that 76.9 percent of the respondents had said that bat, dog and cat only transmit rabies virus to human which is opposite to the study done by Rine, (2017) that showed only 27.5 percent said bat, dog and cat transmit rabies virus to human. This study revealed that, most (90.4%) of the respondents had stated that rabies is spread through saliva whereas in the study of Gebeyaw (2016), 46.8 percent of the respondents stated saliva as a means of transmission of rabies.

Likewise, more than half (54.8%) of the respondents thought the disease is curable. However in reality, once contracted the disease is invariably fatal which is not similar to the study conducted by Chaudhary and Dangi (2021) which showed that majority (85.63%) of them knew that rabies is a fatal disease and cannot be treated once the disease is contracted. Regarding knowledge on signs and symptoms of rabies, more than half of the respondents (68.3%) stated as fear of water, air and light which was inconsistent from the study done by Kapoor et al,.(2019) where only 35.5 percent of the respondents said that fear of water is the sign and symptoms of rabies.

In this study majority (87.5%) of the respondents knew that rabies can be prevented which is similar to the study conducted by Amrita et al., (2013) where 95 percent knew that rabies was

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preventable. This study showed, most (94.2%) of the respondents stated rabies can be prevented by vaccinating the animals like dog, cat whereas the study conducted by Ali (2011) showed only 46.6 percent of the respondents stated that rabies can be prevented in animals through regular vaccination against the disease.

Furthermore, in the case of a suspected rabid dog, majority (85.6%) of the respondents will inform the animal department of the area whereas only 4.8 percent will kill the rabid dog. Similarly, a study conducted by Chaudhary and Dangi (2021) also showed that most (98.28%) will inform either animal public health officials which is unrelated with the study conducted in Kenya by Gerald et al., (2014), only 37 percent of the respondents reported that they will report it to the veterinary officer but 47 percent of them would rather immediately kill the animal.This study revealed that majority (82.7%) of the respondents will wash their wound with soap and water following a dog bite which was similar to the study done in Puducherry by Krishnamoorthy et al., (2018) where 65 percent of them washed the site of wound with soap and water.Likewise, this study revealed that majority (85.6%) of the respondents will visit hospital on the same day following a bite which is similar to the study conducted in Kathmandu by Chaudhary and Dangi (2021) where 87.39 percent will visit hospital on the same day of the bite. Present study highlighted that there was significant association between level of knowledge on rabies with previous history of bite. (p<0.029) however there was no association with age, sex, ethnicity, religion, occupational status, educational status and pet ownership. However, the study findings is contradicted in the study conducted by Ali et al., (2011).

Conclusion and Recommendations

This study concluded that the respondents had low level of awareness on rabies. There was significant association between level of awareness with previous history of bite. On the basis of this findings, there is need of public awareness among them on rabies and its prevention. There is low level of awareness regarding rabies, so there is strong need to organize awareness programs. And a similar study can also be conducted in a large scale in different setting with different characteristics for the generalization of study.

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