

Factors Influencing the Level of Awareness on Anti-rabies Vaccination among Dog Owners in Chennai

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How to cite this paper:

Athilakshmy, P., Kumaravel, P., & Vimalraj Kumar, N. (2020). Factors Influencing the Level of Awareness on Anti-rabies Vaccination among Dog Owners in Chennai. *International Journal of Livestock Research*, 10(12), 163-168. doi: <http://dx.doi.org/10.5455/ijlr.20200812050032>

Received : Aug 03, 2020
Accepted : Nov 24, 2020
Published : Dec 31, 2020

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Abstract

An exploratory study was undertaken in Chennai to figure out the factors influencing the level of awareness on anti-rabies vaccination for dogs among pet owners. The study was conducted purposively in Chennai with total sample size of 118 pet dog owners selected randomly. The relation between socio economic characters of the dog owners and the awareness on anti-rabies vaccination was analyzed using chi square test and logit model. Only 45.76% of the pet owners were aware of importance of anti-rabies vaccination for dogs. The analysis of the results revealed that majority of the pet owners completed collegiate education (56.5%), belonging to female category (48.5%), were having experience in rearing dogs (48.7%), attended training on dog management (72.2%) and those rearing exotic breed of dog (51.1%) were well aware of anti-rabies vaccination for dogs when compared to others. The dog owners, who reared dog for passion (41.2%), acquired the pet from breeder (48.9%) and not allowing the dogs inside their bedroom (55.3%) also had more awareness on anti-rabies vaccination for dogs. A logit model was fitted to explore determinant factors influencing the level of awareness on anti-rabies vaccination among dog owners. Of the above said variables, education of the dog owners was highly significant and attitude of not allowing the dog inside the bedroom was significant at five percent. Hence, it is high time to initiate awareness campaigns and training programmes on anti-rabies vaccination among the general public as the rabies is one among the threatening zoonotic diseases in humans.

Keywords: Anti-rabies Vaccination, Awareness, Dog Owners, Pets, Logit Model

Introduction

The practice of rearing pets has been increasing among the general public, as pets play a major role as companion animal. In addition, they are reared for security purpose and act as stress reliever in this modern era. The habit of owning a pet is increasing in the country over the years irrespective of the income and size of house of the pet owners. The population of dogs in India accounts to 11.67 million in the year 2012 (Basic Animal Husbandry Statistics, 2019). The pet dog population in India has been forecast to reach over 31 million by the end of year 2023 (Madhumitha, 2019). A study in Chennai revealed that majority of the dog owners were middle aged with collegiate education and belonging to low-income group (Balan *et al.* 2015).

Rabies is a deadly zoonotic disease which is transmitted from infected dog to humans through saliva. Around 36% of the world's rabies death occurs in India. Only way to control and prevent rabies is through prophylactic immunization and sterilization of dogs. Sambo *et al.* (2014) and Muthunuwan *et al.* (2017) revealed that only half of the dog owners vaccinated their dog against rabies in Tanzania and Sri Lanka respectively. Herbert *et al.* 2012 stated that there were gaps in the knowledge and attitude of individuals living in urban slums regarding rabies prevention and control. Concerted efforts to widen the knowledge about rabies and promote healthier practices towards free roaming dogs are recommended (Tiwari *et al.*, 2019). With this background, an exploratory study was designed to analyze the factors influencing the level of awareness on anti-rabies vaccination for dogs among dog owners in Chennai.

Materials and Methods

The present study was carried out among 118 dog owners dwelling in different parts of Chennai, Tamil Nadu State, India. A pre-tested interview schedule was utilized to gather data on different factors influencing the level of awareness on anti-rabies vaccination for dogs among the pet owners in Chennai. The chi square test of independence was done to figure out the association between socio economic characters of pet owners and level of awareness on anti-rabies vaccination for dogs. The binary logistic regression model was fitted to find out the determinant factors influencing the level of awareness on anti-rabies vaccination among dog owners.

Results and Discussion

Distribution of Dog Owners Based on Socio Economic Characters and Awareness on Anti-rabies Vaccination

The distribution of dog owners based on socio economic characters and awareness on anti-rabies vaccination in dog is given in the Table 1. Overall, 45.76% of the dog owners had awareness about the importance of anti-rabies vaccination in dogs. Sakshi *et al.* (2017) observed that all the pet owners studied were had awareness on rabies in Bangalore. Raval *et al.* (2019) disclosed that 66.66% of the pet parents were aware of anti-rabies vaccination in dogs. A chi square test of independence was performed to examine the relation between education level and awareness on rabies vaccination. The relation between these variables was statistically significant at one per cent level of probability. The respondents with graduation (56.47%) had more awareness on anti-rabies vaccination when compared to people with school education (18.18%). This is in line with the findings of Singh and Choudhury (2005), Sambo (2014), Awuni *et al.* (2019) and Bouaddi *et al.* (2020). The awareness on rabies vaccination was higher among female (48.48 %) pet owners than male (44.71 %) and it also found that there was no association between gender of the dog owner and awareness on rabies vaccination. This result is similar to that of Ameh *et al.* (2014), Ntampaka *et al.* (2019) and Bouaddi *et al.* (2020). Only forty per cent of first-time pet parents were aware of rabies vaccination in dogs, while 48.72 per cent of people who had experience in dog rearing had awareness. The chi square value between experience and awareness on anti-rabies vaccination was statistically non-significant. Ntampaka *et al.* (2019) had reported that majority of the dog owners had more than five years of experience in dog rearing and the length of dog ownership significantly improve neither the dog owner's knowledge nor the practices regarding rabies.

The chi square value between training attended by pet owners and awareness on anti-rabies vaccination for dogs was 4.7992 and it was statistically significant at 5 per cent level of probability. It revealed that the training programme had positive impact on pet dog owner's awareness on anti-rabies vaccination and hence more such training programmes need to be organized for the benefit of pet parents in future. Shivasakthimani *et al.* (2018)

stated that health education about anti-rabies vaccination needs to be imparted among the community to reduce the rabies related mortality rate. Nearly half of the lower income and lower middle-income group and 66.67% of high-income group were aware of rabies vaccination in dogs. There was no association between income of dog owners and rabies awareness as per chi square value.

Table 1: Distribution of dog owners based on socio economic characters and awareness on rabies vaccination

Socio economic characteristics of dog owners	Awareness on anti-rabies vaccination for dogs		Total	χ^2	p value
	Aware	Unaware			
Education status***					
School education	6(18.18)	27(81.82)	33 (100.00)	14.041	$p < 0.01$
Graduation	48(56.47)	37(43.53)	85 (100.00)		
Gender					
Female	16(48.48)	17(51.52)	33 (100.00)	0.137	$p = 0.712$
Male	38(44.71)	47(55.29)	85 (100.00)		
Experience in dog rearing					
First time pet parent	16(40.00)	24(60.00)	40(100.00)	0.81	$p = 0.368$
Pet parents having experience	38(48.72)	40(51.28)	78(100.00)		
Training on dog management**					
Attended	13(72.22)	5(27.78)	18(100.00)	4.7992 ^a	$p < 0.05$
Not attended	41(41.00)	59(59.00)	100(100.00)		
Annual income					
Lower income	5(50.00)	5(50.00)	10(100.00)	1.81 ^a	$p = 0.613$
Lower middle income	25(51.02)	24(48.98)	49(100.00)		
Upper middle income	20(37.74)	33(62.26)	53(100.00)		
Higher income	4(66.67)	2(33.33)	6(100.00)		
Total	54(45.76)	64 (54.24)	118(100.00)		

^a indicates value with Yates correction; Figures in parenthesis indicates percentage to the row total; **significant at five percent level of probability; *** significant at one percent level of probability

Distribution of Pet Parents Based on General Dog Management Practices and Awareness on Anti-Rabies Vaccination for Dogs

The distribution of pet parents on general dog management practices and awareness on anti-rabies vaccination for dogs was given in Table 2. Nearly fifty percent and thirty percent of the pet owners rearing exotic breed and non-descriptive breed of dog respectively were aware of anti-rabies vaccination for dogs. A chi square test of independence revealed that the relation between these variables was statistically significant at five per cent level of probability. The dog owners who were rearing exotic breed of dog had more awareness on anti-rabies vaccination when compared to those who reared non descriptive breed of dog. Ameh *et al.* (2014) stated that indigenous breeds of dog had the highest vaccination coverage compared with exotic breeds and crosses. Majority of the pet owners reared dog as passion and among them 41.18% were aware of anti-rabies vaccination. As per χ^2 value, there is no association between purposes of rearing the dog and anti-rabies vaccination awareness among pet parents. The dog owners who had acquired the pet dog from breeders had 48.94% awareness, whereas 44.78 % respondents who acquired the pet dog from friends and others were aware of anti-rabies vaccination. But the association between ways of acquisition of pet dog and awareness on anti-rabies vaccination was statistically non-significant.

Majority (71.43 %) of the respondents who were allowing their pet inside the bedroom did not aware about anti-rabies vaccination and only 28.57 % of the pet owners had awareness on anti-rabies vaccination and allowing their pet inside the bedroom. The association between the attitude of not allowing the pet inside the bedroom and awareness on anti-rabies vaccination is highly significant. The unawareness on anti-rabies vaccination among majority of the pet parents who are allowing the dog inside their bedroom, pose zoonotic threat.

Table 2: Distribution of dog owners based on general dog management and awareness on rabies vaccination

General dog management practices	Awareness on anti-rabies vaccination for dogs		Total	χ^2	p value
	Aware	Unaware			
Breed of dog**					
Exotic breed	45(51.14)	43(48.86)	88 (100.00)	4.027	p<0.05
Non Descriptive breed	9(30.00)	21(70.00)	30 (100.00)		
Purpose of rearing dog					
Passion	42(41.18)	60(58.82)	102(100.00)	2.275 ^a	p= 0.517
Stress reliever	3(75.00)	1(25.00)	4(100.00)		
Companion in old age	2(18.18)	9(81.82)	11(100.00)		
Security purpose	0(0)	1(100.00)	1(100.00)		
Way of acquisition					
From breeder	23(48.94)	24(51.06)	47(100.00)	.196 ^a	p= 0.907
From friends	30(44.78)	37(55.22)	67(100.00)		
Others	1(25.00)	3(75.00)	4(100.00)		
Allowing the pet inside the bedroom***					
Yes	12(28.57)	30(71.43)	42 (100.00)	7.765	p<0.01
No	42(55.26)	34(44.74)	76 (100.00)		
Total	54(45.76)	64 (54.24)	118(100.00)		

^a indicates value with Yates correction; Figures in parenthesis indicates percentage to the row total; **significant at five percent level of probability; *** significant at one percent level of probability

Factors Influencing the Level of Awareness on Anti-Rabies Vaccination Among Dog Owners

To explore determinant factors influencing the level of awareness on anti-rabies vaccination among dog owners, binary logistic regression (logit model) was fitted and the results were presented in table 3. From the table, it was evident that the model Chi square was 36.552, which indicated that the model was statistically significant. Among various variables, education of the dog owners was highly significant and attitude of not allowing the dog inside the bedroom was significant at five percent level. These results are similar with the earlier findings of Sambo (2014), Awuni *et al.* (2019), Alam *et al.* (2020) and Bouaddi *et al.* (2020).

Table 3: Factors influencing level of awareness on anti-rabies vaccination among dog owners

X _i	Variables	Variables description	B	S.E.	Wald	Sig.
X ₁	Education (1) ***	1- Schooling	-2.031	0.607	11.198	0.001
		0 - Graduation				
X ₂	Gender (1)	1-Male	0.31	0.496	0.392	0.531
		0 -Female				
X ₃	Breed of dog (1)	1 – Exotic	-0.554	0.593	0.873	0.35
		0- ND				
X ₄	Experience in dog rearing (1)	1-No	-0.717	0.492	2.121	0.145
		0 - Yes				
X ₅	Purpose (1)	1-Passion	-0.955	0.854	1.25	0.264
		0- Companion in old age				
X ₆	Training for dog owners (1)	1- Attended	-1.316	0.702	3.51	0.561
		0 - Not attended				
X ₇	Way of acquisition (1)	1-Breeder	-0.372	0.498	0.557	0.456
		0- Friends				
X ₈	Dogs are allowed inside the bedroom (1)**	1- Yes	-1.375	0.55	6.242	0.012
		0- No				
X ₉	Income		0	0	0.387	0.534
	Constant		5.232	1.681	9.687	0.002
Chi square value = 36.552***						

* Significant at ten percent level of probability; ** Significant at five percent level of probability; ***Significant at one percent level of probability

The reliability of the usage of logit model for the correct prediction of the awareness and unawareness on rabies vaccination among dog owners was tested by comparing the observed and predicted values. The percentage of correct prediction of logit model was 70.30 per cent. The model was successful in predicting unawareness on rabies vaccination (71.90%) than awareness on rabies vaccination among dog owners (68.50%).

Table 4: Comparison of Prediction of the logistic regression analysis

Observed		Predicted		
		Rabies vaccination		Percentage Correct
		Unaware	Aware	
Rabies vaccination	Unaware	46	18	71.9
	Aware	17	37	68.5
Overall Percentage				70.3

Conclusion

Nearly half of the pet owners studied were unaware on prophylactic immunization in dogs against rabies and the percentage of awareness on anti-rabies vaccination for dogs among pet owners studied was 45.76. Among the dog owners who were aware on anti-rabies vaccination, respondent with collegiate education, female, having experience in dog rearing, attended training on dog management had more awareness when compared to others. The dog owners who owned exotic breeds were more aware on anti-rabies vaccination compared to those who owned non descriptive breed. In contrary, the people with the attitude of allowing dogs inside the bedroom had low awareness on anti-rabies vaccination in dogs. The education of the dog owners and attitude of not allowing the dog inside the bedroom were statistically significant. Hence, it is high time to disseminate awareness among pet owners on importance of anti-rabies vaccination in dogs. A focused information communication technology intervention on rabies awareness needs to be deployed.

Acknowledgement

Sincere thanks to Tamil Nadu Veterinary and Animal Sciences University for having allowed to conduct the study in the clinics of MVC, Chennai-7. Deep sense of gratitude to Dr. C. Balan, Assistant Professor, Department of Animal Husbandry Statistics, Madras Veterinary College, Chennai for his support in statistical analysis.

Conflict of Interests

There is no conflict of interest.

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