

Evaluation of Owner Satisfaction Following Biofel PCH Vaccination of Cats in SAQTVH and TTPHRC



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Abstract

Biofel PCH vaccination of cats related study was conducted directly at the S. A. Quadery Teaching Veterinary Hospital (SAQTVH) of CVASU and Teaching and Training Pet Hospital and Research Center (TTPHRC) of CVASU. Data was collected through questionnaire forms. Because one of the most important measures in preventing and controlling cats' infectious diseases is vaccination. So, it is important to evaluate owners' satisfaction on cats' vaccinations. The goal of the current study was to identify parameters that were related to the Biofel PCH vaccination status of cats in Bangladesh and to determine respondents' satisfaction toward vaccination guidelines . A total of 81 questionnaires were statistically analyzed. Only 52% of cats were found to have received the Biofel PCH vaccination, despite the fact that 81% of the owners were aware that their cats were susceptible to infectious diseases. Therefore, it is clear that owners did not give their cats adequate attention. So, our cats are not protected against different infectious diseases. Along with other factors, the Biofel PCH vaccination rate is also affected by issues such as high costs, long travel times, difficult transportation, inappropriate clinic hours, and lengthy waiting times etc. In order to increase cats' protection against infectious diseases, owner's awareness should be increased as well as availability of the Biofel PCH vaccine should be increased so that others negative factors such as high cost will be reduced.

Keywords: Cat, Vaccination, Biofel PCH vaccine, Infectious diseases, Cat owners', Attitudes

Chapter-I

Introduction

Vaccination plays a crucial role in the prevention and control of infectious diseases in both humans and animals (Gaskell et al., 2002; Habacher, Gruffydd-Jones, & Murray, 2010). For effective disease control in feline populations, research indicates that at least 70% of cats must be immunized to prevent an outbreak (Stuetzer & Hartmann, 2014; Day et al., 2016). This highlights the importance of widespread vaccination programs as a key public health measure to curb the spread of infectious diseases in animal populations.

According to global vaccination guidelines shared by various veterinary organizations like the World Small Animal Veterinary Association (WSAVA), the American Association of Feline Practitioners (AAFP), and the Advisory Board on Cat Diseases (ABCD), all cats, regardless of their location or circumstances, should be vaccinated against feline parvovirus (FPV), feline calicivirus (FCV), and feline herpesvirus-1 (FHV-1) (Day et al., 2016; AAFP, 2013; AAFP, 2020; ABCD, 2020). These are referred to as core vaccines. In regions where rabies is prevalent, vaccination against the rabies virus is also considered core. However, the vaccine for feline infectious peritonitis (FIP) is generally not recommended (Day et al., 2016; AAFP, 2013; AAFP, 2020; ABCD, 2020).

Global guidelines for feline vaccination, as outlined by organizations like WSAVA, AAFP, and ABCD, recommend that all cats should be vaccinated whenever possible. This not only protects individual animals but also contributes to essential 'herd immunity,' reducing the risk of infectious disease outbreaks (Day et al., 2016; AAFP, 2013; ABCD, 2020). The latest guidelines suggest administering core vaccines every three years, particularly for low-risk cats, such as those kept strictly indoors (Hosie et al., 2015; Day et al., 2016; Scherk et al., 2013). For non-core vaccines like Chlamydia

felis and *Bordetella bronchiseptica*, as well as core vaccines in high-risk settings, annual revaccination is recommended (Gehrig et al., 2019).

Vaccine-associated adverse effects (VAAEs) have become an increasing concern in human medicine, leading many people to hesitate when it comes to vaccinating themselves or their children (Guerra et al., 2017). The World Health Organization (WHO) has identified vaccine hesitancy as one of the top 10 global health threats. Similarly, many pet owners are uncertain about vaccinating their animals, questioning the necessity of vaccines (Kitala et al., 2002) and expressing concerns about VAAEs (Day, 2006; Gehrig et al., 2019).

A study conducted in the UK that evaluated attitudes towards vaccination found that cats who stayed in catteries or participated in cat shows were nearly 12 times more likely to have an up-to-date vaccination status compared to other cats. Additionally, vaccinating kittens significantly influenced the likelihood of those cats being vaccinated as adults (Habacher, Gruffydd-Jones, and Murray 2010).

It is important to evaluate current cat owners' satisfaction toward the Biofel PCH vaccination. So far, vaccination compliance among cat owners has been studied in three countries: the United Kingdom (Habacher, Gruffydd-Jones, and Murray 2010), Germany (Gehrig et al. 2019), and Italy (Filipe et al. 2021). The aim of this study was to assess respondents' satisfaction toward vaccination guidelines and identify factors related to the Biofel PCH vaccination status of cats in Bangladesh.

Chapter-II

Materials and methods

2.1. Study period and Area

Data was collected from S. A. Quadery Teaching Veterinary Hospital (SAQTVH) of CVASU from 19 June to 5 July and Teaching and Training Pet Hospital and Research Center (TTPHRC), Dhaka under Chattogram Veterinary and Animal Sciences University (CVASU) from 6 July to 14 August directly from owners.

2.4. Data collection

The survey questions were carefully refined to enhance clarity and ensure relevance to the study objectives. Data was collected through face-to-face at SAQTVH (CVASU) and TTPHRC. Cat owners were asked whether their cats had been vaccinated, with those never vaccinated classified as "unvaccinated." Additional details were gathered, including the specific vaccine used (whether Biofel PCH or another), the age at which the first vaccination occurred, the interval between vaccinations, and whether the veterinarian had recommended the vaccine. Owners were also questioned about whether their cats had received only the rabies vaccine or the full suite of core vaccinations, which globally includes protection against FPV, FHV-1, and FCV.

To maintain the integrity of the data, respondents who did not specify their age, those under 17 years old, owners of cats under 8 weeks of age, veterinarians, and individuals residing outside of Bangladesh were excluded from further analysis.

A total 81 questionnaires were evaluated descriptively. Not all participants answered all questions, but all questions that were answered were included in the study.

2.5. Statistical analysis

All complied data were imported in Microsoft Excel- 2019 and transferred to STATA 3.5.1 version for statistical analysis to demonstrate frequency and percentages of different variables related to cats' owners' information, cats' information, Owners' satisfaction towards Biofel PCH vaccination.

Chapter-III

Result

3.1. Information about cats' owners:

In this study, here around 75% (n=61/81) of the owners were female, rest 25% (n=20/81) were male. In case of occupation, 48% (n=39/81) of cats' owners were students, 15% (n=12/81) were job holders, 29% (n=24/81) were housewives, and about 7% (n=6/81) were from other different occupations.

Table 1. Frequency and percentages of different variables related to cats' owners information with Biofel PCH vaccination status

Variable	Category	Total (%)	Age of vaccination		
			No. of Biofel PCH (%) Vaccinated at (≤ 3 months)	No. of Biofel PCH(%) Vaccinated at (> 3 months to ≤ 6 months)	No. of Biofel PCH(%) Vaccinated at (> 6 months)
Gender	Male	20(25%)	8	9	3
	Female	61(75%)	12	37	12
	Total	81	20	46	15
Occupation	Student	39(48%)	12	17	10
	Housewife	24(29%)	5	16	3
	Job holders	12(15%)	6	5	1
	Others	6(7%)	0	3	2
	Total	81	23	41	16

3.2. Information about cats

In our study, 24.69% (n=20/81) cats were of ≤ 3 months age, 56.79% (n=46/81) cats were of > 3 months to ≤ 6 months age and 18.52% (n=15/81) cats were of > 6 months age. 48.148% (n=39/81) cats were of Deshi breed, 29.63% (n=24/81) cats were of Persian breed, 19.75% (n=16/81) cats were of cross breed and 2.47% (2/81) were other breeds.

Table 2. Frequency and percentages of different variables related to cats' information with Biofel PCH vaccination status:

Variable	Category	Total (%)	Age of vaccination			P-value
			No. of Biofel PCH(%) Vaccinated at (≤ 3 months)	No. of Biofel PCH(%) Vaccinated at (> 3 months to ≤ 6 months)	No. of Biofel PCH(%) Vaccinated at (> 6 months)	
Age of the cat	Male	20	8	9	3	0.00
	Female	61	12	37	12	
	Total	81	20(24.69%)	46(56.79%)	15(18.52%)	
Breed of cat	Deshi Cat	39(48.148%)	12	17	10	0.00
	Persian	24(29.63%)	5	15	4	
	Cross	16(19.75%)	3	12	1	
	Others	2(2.47%)	0	2	0	

3.3. Owners' satisfaction towards Biofel PCH vaccination

It was found that 39.5% owners took veterinarian's advice before vaccination and 60.49% owner's did not take veterinarian's advice. 25.93% cats were susceptible to infectious diseases even after vaccination and 74.07% cats were not susceptible to infectious diseases. Vaccination was relatively effective in 83.95% cats and was relatively not much effective in 16.05% cats. 17.29% cats were revaccinated by the owner and no data of revaccination was found in case of 82.716% cats. A significant association was found between all variables. The susceptibility of cats to infectious diseases related to vaccination was found to be less significant than other variables. Seeking veterinarian advice by the owners was a significant variable. Cats' susceptibility to infectious diseases was less significant compared to other variables. Despite vaccination, 25.93% of cats remained susceptible to infectious diseases. This may be due to other infectious agents rather than the viruses (Feline panleukopenia virus, Feline calicivirus, Feline herpesvirus) targeted by the vaccination, which showed significant value. The vaccine was effective in 83.95% of cats, indicating a high rate of success. Yearly revaccination of cats by the owners also showed significant value. Only 17.29% of cat owners were aware of the need for revaccination, while 82.716% of cats were not revaccinated or had no data on revaccination. This highlights a lack of awareness among owners.

Table 3. Frequency and percentages of different variables related to owners' satisfaction towards Biofel PCH vaccination

Variable	Category	Total (%)	Age of vaccination			P-value
			No. (%) Vaccinated at (≤ 3 months)	No. of Biofel PCH(%) Vaccinated at (> 3 months to ≤ 6 months)	No. of Biofel PCH(%) Vaccinated at (> 6 months)	
Veterinarian's advice	Important	32(39.5%)	9	18	5	0.00
	Unimportant	49(60.49%)	11	28	10	
Cat's susceptibility to infectious diseases	Susceptible	21(25.93%)	12	6	5	0.005
	Unsusceptible	60(74.07%)	8	40	10	
Effectiveness of vaccination	Important	68(83.95%)	16	43	9	0.00
	Unimportant	13(16.05%)	4	3	6	
Revaccination of cat by the owner	Every year	14(17.29%)	4	7	3	0.00
	Unknown	67(82.716%)	16	39	12	
	Total	81	20	46	15	

Chapter-IV

Discussion

Vaccination is the most crucial aspect of preventing infectious diseases and has become an essential part of pet healthcare. According to international vaccination guidelines established by various veterinary organizations, including the World Small Animal Veterinary Association (WSAVA), the American Association of Feline Practitioners (AAFP), and the Advisory Board on Cat Diseases (ABCD), all cats should be vaccinated against feline parvovirus (FPV), feline calicivirus (FCV), and feline herpesvirus-1 (FHV-1), regardless of their circumstances or location (Day et al., 2016; AAFP, 2013; AAFP, 2020; ABCD, 2020). These vaccines are classified as "core vaccines." Additionally, in regions where rabies is prevalent, vaccination against the rabies virus should also be considered essential.

In line with similar studies (Gehrig et al., 2019; Habacher, Gruffydd-Jones, and Murray, 2010), our research utilized a web-based questionnaire. This approach was chosen for two main reasons: it allowed us to gather data on unvaccinated cats and those not registered with veterinary clinics. To avoid bias in respondents' opinions about vaccination, the survey was titled the "Cat Information Questionnaire." Furthermore, to minimize selection bias, the questionnaire was not posted on websites focused on cat vaccination or health issues.

It has been determined that in order to prevent an epidemic of a certain infectious disease, >70% of the cats in a population must be protected (Day, et al. 2016, Stuetzer and Hartmann 2014). Study in the Germany found that recently vaccinated (within 3 years) was 77.9% (Gehrig, et al. 2019), in the Italy it was 80% (Filipe, et al. 2021). So, vaccination rate in Bangladesh is very low compare than other countries where previously similar studies are done. So, it is clear that our cat population are not protected from different infectious diseases. One reason might be due to economic loss

linked to the COVID -19 pandemic that may also reduce the likelihood of cats' vaccination. Another reason might be most of cats' owner are female (61%) and most of them are students (39%), majority of them have no good source of income. It was found that the vaccination status of cats was influenced by the income of the owners. It is crystal clear that to increase protection against infection disease, vaccination rate should be increased. Awareness program should be done regularly and price of vaccine should be reduced by increasing availability

Core vaccines, which include the FPV, FCV, and FHV-1 vaccines, should be administered as frequently as every three years, according to current recommendations for vaccination (Hosie, et al. 2015, Day, et al. 2016, Scherk, et al. 2013). Following basic immunization, it is advised to revaccinate for FPV every three years and for FHV-1 and FCV every year to every three years, depending on the recommendations and the individual cat's circumstances (Hosie, et al. 2015, Day, et al. 2016, Scherk, et al. 2013). In this study it was found that revaccination time known by 14% owners for Biofel PCH vaccine was every year. The first vaccine series for kittens should begin at 6–8 weeks of age, followed by booster shots every 3–4 weeks until the age of 16 weeks, and a booster shot 11–13 months later as a foundation for a strong immunity (Hosie, et al. 2015, Day, et al. 2016, Scherk, et al. 2013). Owners need to be made aware of this. The frequency of "recent vaccination" records was higher in cats without treatment for health issues. This is consistent with vaccination guidelines, which state that only healthy cats should receive vaccinations in order to maximize their safety and effectiveness (Day, et al. 2016, Truyen, et al. 2009). Cats older than 10 years old had a lower prevalence of "recent vaccination status" than cats younger than that age. Due to a longer history of vaccinations, older cat owners can believe that their pets have a higher likelihood of being immune to infectious diseases. All cats, regardless of age, should receive regular boosters (Hosie, et al. 2015, Day, et al. 2016, Scherk, et al. 2013). There are currently no vaccination guidelines specific to older cats, and no research has been done to suggest that they need any fewer or additional shots than younger cats (Hosie, et al. 2015, Day, et al. 2016). According to one study, many cats and dogs who had their first rabies

vaccination at an advanced age could not generate a sufficient immune response to the virus (Mansfield, et al. 2004). In contrast, antibodies against FPV, FHV-1, and FCV persisted for considerably longer than 3 years following vaccination in another study, suggesting that the majority of elderly cats are probably protected (Scott and Geissinger 1999). Additional research is required to assess the immunological response in elderly pets in order to decide whether particular vaccination recommendations should be made. The majority of the questionnaire respondents were female which was around 70%. Similarly study in the UK, female respondents were 86% (Habacher, Gruffydd-Jones and Murray 2010), in the Italy it was 92% (Filipe, et al. 2021). Unknown factors may have contributed to the fact that there were more female respondents to the survey than male respondents, but it might be because there are more female cat owners than male cat owners. Additionally, women are said to have greater empathy for animals, show greater interest in health-related issues, and be more responsible than men for their pets' healthcare, which may have contributed to an increase in the number of vaccinations of their cats compared to the number of vaccinations of male owners' cats.

Bangladeshi owner thought vaccination was less important as their indoor only pets didn't go to other pets' contact, which might be another reason of lower percentage of vaccination in this study. Global recommendations, however, advise booster vaccinations every 3 years also for indooronly cats (Day, et al. 2016, American Association of Feline Practitioners (AAFP) 2013, European Advisory Board on Cat Disease (ABCD) 2020, Dall'ara 2020, Hosie, et al. 2015). Veterinarians should take this finding into account and inform cat owners of the value of appropriate vaccination protocols and boosters, even for cats that only live indoor, in order to enhance the vaccination status of cats. Most of the cat's breed were desi breed which was about 39%. Among other breeds Persian breed were maximum around 24% and also cross 16%. In purebred cats as opposed to domestic cats, "recent vaccination" records were more frequently found. 32% of cats' owners said veterinarian advice was important for proper vaccination. As pets are rapidly increasing in Bangladesh and most of the owners does not have proper information about pet rearing and their management they usually

depend on social media and internet. Most of the time they do not get right information and thus they are being mis led. So, it is essential to increase quality veterinary services to serve increasing pet population accurately. 68% owners said effectiveness of vaccination is important factor for vaccinate the cats. It was very common to find infected cats which were previously vaccinated. The transportation and preservation of vaccine should be monitored carefully. Vaccination should be done with proper care with specific dosage and in the right route. From this study we found that our cat population were not protected against infectious diseases. Because only 81% cats were found vaccinated with Biofel PCH though 21% of the owners knew that their cats were susceptible to infectious diseases which reflects the negative attitude of owners towards vaccination. Besides some others aspects also reduce the vaccination rate such as high cost, high distance to clinic, complex transport system, unsuitable clinic opening times and long waiting time etc.

Chapter-V

Conclusion

From This study revealed that the cat population did not receive an adequate number of vaccinations, including Biofel PCH. To improve vaccination rates, efforts should be made to enhance owner satisfaction with Biofel PCH. Additionally, barriers such as high vaccination costs, limited availability, and inadequate clinic facilities need to be addressed to further increase vaccination uptake.

Chapter-VI

Limitations

The survey sample of cat owners was self-selected, which might have contributed to the age and gender bias. We did direct face to face survey from SAQTVH and TTPHRC to reduce this bias. Face-toface data was collected only from Dhaka and Chattogram urban areas. Also the sample size was small. Thus, it is recommended that future studies will cover a wider area and larger sample size to reduce this selection bias.

Chapter-VII

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Biography

I am Faysal Khalequzaman an intern student of Faculty of Veterinary Medicine at Chattogram Veterinary and Animal Sciences University from Panchagarh (Upazilla:Panchagarh Sadar). I have completed my Secondary School Certificate (SSC) and Higher Secondary Certificate (HSC) in 2014 and 2016 respectively. As a future veterinarian after completing DVM, I would like to be a Veterinary Surgeon.