

ORIGINAL ARTICLE

KNOWLEDGE, ATTITUDE, and PRACTICES ON RABIES PREVENTION AND CONTROL AMONG PRIMARY CARE PROVIDERS OF CHILDREN 0-18 YEARS OLD

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ABSTRACT

Objectives: To determine the knowledge, attitude, and practices (KAP) on rabies prevention and control among primary care providers of children 0-18 years old.

Methodology: This is an analytical cross-sectional study conducted among primary care providers of children 0-18-years old in Barangay Sambag I, Cebu City, Philippines. A questionnaire to determine the KAP on rabies prevention and control, originally developed by Lañada et al., was modified and contextualized to the local setting. Respondents with at least 75% correct answers per domain were considered to have good overall knowledge, attitude, and practices. Furthermore, each question under the above domains was analyzed separately to determine any gaps in KAP. Results were recorded as frequencies and percentages. The association of KAP to one another and the respondents' profiles were analyzed using Chi-square test with a level of significance of 0.05.

Results: Among 285 respondents, 59.3% had poor knowledge, 35.8% had wrong practices, and 21.8% had negative attitude on rabies prevention and control. We found that 92.6% did not know that rabies is incurable. As to practices, performing "tandok" (42.5%), or the act of removal of rabies from a wound by using an animal horn, and applying herbal medicines (34%) were still done. Use of dog restraint (44.6%) and euthanasia (40%) weren't favorable to study participants. Surprisingly, non-dog owners had good knowledge and positive attitude than dog owners.

Conclusion: Our study showed that majority of the study population had poor knowledge on rabies prevention and control, on disease transmission, and on the incurability of rabies. While majority had a positive attitude and correct practices, the unacceptability on the use of a dog restraint and euthanasia, especially among dog owners, were still evident.

KEYWORDS: *Rabies, Knowledge, Attitude, Practice, KAP*

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The author declares that the data presented are original material and has not been previously published, accepted or considered for publication elsewhere; that the manuscript has been approved by the author, and that the author has met the requirements for authorship.

INTRODUCTION

Rabies is a fatal but preventable viral disease. Globally, canine rabies causes approximately 59,000 human deaths, with 56% of cases occurring in Asia.¹ In the Philippines, rabies is endemic and remains to be a major public health concern. According to the Department of Health National Rabies Prevention and Control Program, rabies is responsible for the death of 200-300 Filipinos annually, and at least one-third of these deaths occur in children aged 15 years old and below.² The Philippine Government has taken steps to address these with “The Rabies Act of 2007” which highlights key components of rabies prevention and control such as public awareness, health education, dog vaccination, and availability and accessibility of post-exposure prophylaxis (PEP).^{2,3} In spite of this, the confirmed number of positive human rabies cases increased by 13.5 % in the last 9 years, with Central Visayas ranking third among regions with the highest human rabies cases

Rabies is a highly fatal disease with no known treatment once clinical manifestations of the disease set in. It is however preventable with timely intervention through PEP. Patients receive human anti-rabies vaccines and/or immunoglobulins in Animal Bite Treatment Centers (ABTCs) free of charge. Although efforts have been directed towards mass dog vaccination programs and establishing ABTCs, all these remain futile if the public lacks awareness and compliance on rabies prevention and control protocols.

Limited information has been published on rabies knowledge, attitude, and practices, hence this study was conducted to determine the KAP of primary care providers of children <18 years old on rabies transmission, management, and prevention. Information obtained in this study can be used to set public health priorities. In addition, it can help improve existing rabies programs based on gaps observed in the KAP of community members.

MATERIALS AND METHODS

Study Design and Population

This is an analytical cross-sectional study where primary care providers of at least one child (0-18 years old) per household, and residing in Brgy. Sambag I, Cebu City Philippines, with informed consent to participate in the study were included. Excluded are those who cannot understand English and/or Cebuano, the local dialect, and those with incompletely answered questionnaires.

The sample size was computed with a software called Select Sample Size Calculator. The recorded number of households with children 0-18 years old is 2,611. In a related study entitled, “Knowledge, Attitudes, and Practices relating to Rabies Control in Baybay City, Leyte Philippines” by Lañada et al., 35.83% of the respondents had poor practices on rabies control⁴. This served as the basis for the sample proportion in the equation. Through this calculator, a sample size of 286 was derived (Figure 1). A non-probability convenience sampling was utilized.

Calculator

What margin of error do you need? 5% is a common choice	5.25 %	i
What confidence level do you need? Typical choices are 90%, 95%, or 99%	95 %	i
How big is the population? If you don't know, use 100,000	2611	i
What do you believe the likely sample proportion to be? If you're not sure, leave this as 50%	35.83 %	i
Your recommended sample size is	286	i

Figure 1. Calculation of Sample Size using the Select Sample Size Calculator

Data Collection Tool and Analysis

The survey tool is a 4-part modified questionnaire adapted from a previous study by Lañada et al. The survey utilized a validated questionnaire that determined the knowledge, attitudes, and practices related to rabies control and

prevention.⁴ Consent to use the said tool was obtained from the author. A modified questionnaire was created and validated by an infectious disease specialist deemed to be an expert on the topic. The said expert ensured that the questions effectively captured the topic under investigation. The questionnaire consisted of 9 items on profile, 13 on knowledge, 11 on attitude, and 6 on practices related to rabies prevention and control. Questions on KAP were answerable by “yes” or “no,” and each correct answer scored 1 point. To ensure accuracy, the questions were translated to Cebuano and back translated to English by a linguist from the Summer Institute of Linguistics (SIL) Philippines, until the final questionnaire was produced, either in the English or Cebuano language. Pilot testing was not done because of the nature of the the study (survey through interview) thus internal consistency is not necessary. The researcher then identified and trained 17 barangay health workers (BHW) to help administer the questionnaire. The training was conducted in the barangay health center and the following were emphasized: goal of the study, significance of the data being collected and how it will be used, and the respondents to be included in the study. All the questions were reviewed one by one to make sure that all BHWs and the researcher have the same understanding of the question. All queries raised by the BHWs on the questionnaire were properly addressed by the researcher. Each BHW was then given 19-20 questionnaires to be distributed to their assigned areas (or sitios).

All 28 sitios of Barangay Sambag I, Cebu City were visited in order to conduct the interview. The first household per sitio was randomly chosen, and subsequent households were selected based on proximity. Informed consent was obtained and study participants were screened using the inclusion and exclusion criteria. Returned questionnaires were evaluated for completeness before data processing.

Data analysis was done as follows: Each item per KAP domain was analyzed individually. If 75% or more of the entire population was able to answer the

question correctly, they were labeled as having good knowledge, positive attitude, and correct practice on a particular question. Overall level of knowledge, attitude and practice were then analyzed. If the respondent was able to correctly answer 75% of the 13 questions on knowledge (at least 10 correct answers), 11 questions on attitude (at least 8 correct answers), and 6 questions on practice (at least 5 correct answers), the respondent was labeled as having good overall knowledge, positive attitude, and correct practice. Results were recorded as frequencies and percentages. Chi-square test was used to determine the relationship of KAP with one another and to the primary care provider’s profile. Precision was carried out at 95% confidence level estimates and all tests of significance were set at 0.05.

Ethical Considerations

The study protocol was approved by the Institutional Review Board (IRB) prior to study initiation. Permission was also sought from the local town official (barangay captain) before the conduct of the study. Data collection sheets were coded and extracted data were treated with utmost confidentiality.

RESULTS

A total of 330 questionnaires were distributed, but only 285 responses were obtained (89% response rate). There were more female respondents, and majority were married, high school graduates, and earning about <6,000 pesos per month. Only 42.8% were dog owners, and 23.2% owned pets other than dogs. Most respondents had no history of dog bite in their household.

Table 2 presents the number of respondents with correct answers on knowledge questions about rabies prevention and control. Almost all knew that rabies can kill but is preventable through vaccination. Eighty-four percent were aware that transmission is not by casual contact (touching/talking to a person with rabies). Most respondents knew that

vaccination can be accessed from authorized government units and were aware of the “Anti-Rabies Act of 2007”. More than half also knew that rabies is caused by a virus and that dogs are the main reservoir of rabies in the Philippines.

Table 1. Profile of Primary Care Providers

Participant Characteristics	n	%
Age (years)		
18-25	66	23.2
26-40	99	34.7
41-64	105	36.8
65 and above	15	5.3
Gender		
Male	75	26.3
Female	210	73.7
Marital status		
Single	88	30.9
Married	164	57.5
Separated	18	6.3
Widow/Widower	15	5.3
Educational attainment		
Elementary	21	7.4
Highschool	134	47
College	98	34.4
Post-graduate	32	11.2
Monthly income (Php)		
>50,000	9	3.2
30,000-50,000	10	3.5
15,000-29,999	23	8.1
6,000-14,999	79	27.7
<6,000	164	57.5
Dog owner		
Yes	122	42.8
No	163	57.2
Dogs owned		
1	59	20.7
2	45	15.8
3 or more	18	6.3
Pets other than dogs		
Yes	66	23.2
No	219	76.8
History of dog bite in the household		
Yes	61	21.4
No	224	78.6

Majority did not know that rabies is incurable, that not all dogs are naturally infected with rabies, and that symptoms of rabies can appear as late as one year after a bite. Nearly thirty percent of respondents also did not know that animal bites are the most common mode of rabies transmission, that aside from dogs, other animals can also transmit rabies, and that rabies can be transmitted thru the scratch or lick of an infected dog.

Attitude toward rabies prevention and control was generally positive (Table 3). Almost all think that dog registration is important and are willing to submit their dogs for rabies vaccination.

Eighty percent would seek medical help, regardless if the biting animal is vaccinated or alive and well. Majority would inform authorities of dog bite incidents, and are willing to receive both post-exposure and pre-exposure rabies prophylaxis.

Table 2. Participants with Correct Responses on Knowledge Questions about Rabies Prevention and Control

Knowledge Questions	Respondents with Correct Answers	
	n	%
1. Is rabies caused by a virus?	217	76.1
2. Are dogs the main reservoir of rabies in the Philippines?	215	75.4
3. Do all dogs have rabies?	64	22.5
4. Are animal bites the most common mode of transmission of rabies in the Philippines?	201	70.5
5. Can animals other than dogs transmit rabies?	200	70.2
6. Can rabies be transmitted when scratched or licked by an infected dog?	162	56.8
7. Can rabies be transmitted by touching/talking to a person with rabies?	240	84.2
8. Will symptoms of rabies appear as late as one year after the bite?	136	47.7
9. Can rabies kill?	279	97.9
10. Is there a cure when you already have rabies infection?	21	7.4
11. Is rabies preventable by vaccination?	262	91.9
12. Do you know that rabies vaccine can be obtained from authorized government units?	238	83.5
13. Are you aware of Republic Act 9482 also known as “Anti-Rabies Act of 2007” (“An Act Providing for the Control and Elimination of Human and Animal Rabies, Prescribing Penalties for Violation Thereof and Appropriating Funds Thereof”)?	236	82.8

About 44.6% believed that leashing or caging dogs is cruel and 40% disfavored euthanasia on a suspected rabid dog. Only a minority would not send the head of a suspected animal to a diagnostic laboratory for rabies confirmation.

Table 3. Participants with Correct Responses on Attitude Questions about Rabies Prevention and Control

Attitude Questions	Respondents with Correct Answers	
	n	%
1. Do you think all pet dogs should be registered?	274	96.1
2. If you have a dog, are you willing to submit them for rabies vaccination?	269	94.4
3. If you have a dog, are you willing to receive pre-exposure prophylaxis?	224	78.6
4. Are you willing to receive post-exposure prophylaxis for rabies if bitten by dogs?	230	80.7
5. If the biting animal is vaccinated, would you still seek medical help?	269	94.4
6. If the biting animal is alive and well, would you still seek medical help?	258	90.5
7. Do you think leashing or caging dogs is cruel?	158	55.4
8. Are you in favor of spaying or neutering dogs?	231	81.1
9. Are you in favor of euthanasia or mercy killing of a dog if it is suspected to be rabid?	171	60
10. Would you inform authorities if you are bitten or if somebody is bitten by a dog?	234	82.1
11. Are you willing to send the head of a suspected animal to a diagnostic laboratory for confirmation?	209	73.3

Traditional practices such as performing “tandok” were still observed by almost half of the respondents. Only a minority apply herbal medicines to the wound and consult a traditional healer or “albularyo” after a bite. Majority conformed to correct practices such as washing the wound with soap and water, receiving rabies vaccine, and consulting a doctor after a bite (Table 4).

Table 4. Participants with Correct Responses on Practice Questions about Rabies Prevention and Control

Practice Questions	Respondents with Correct Answers	
	n	%
If you were/have been bitten by a dog, did/will you...		
1. Wash the dog bite first with soap and water?	280	98.2
2. Apply herbal medications to the wound (eg. garlic)?	188	66
3. Perform “tandok”, on the dog bite?	164	57.5
4. Consult a doctor after a dog bite?	258	90.5
5. Consult an “albularyo” [§] after a dog bite?	240	84.2
6. Receive rabies vaccination after a dog bite?	266	93.3

[†]- the process of removal of rabies, venom, and tetanus from a wound by application of excessive pressure using an animal horn

[§]- a Filipino faith healer or witch doctor

From the constructs described in Tables 2-4, we determined the overall knowledge, attitude, and practice of each primary care provider. As shown in Table 5, majority had poor knowledge (59.3%) while most had positive attitude (78.2%) and correct practices (64.2%).

Table 5. Distribution of Respondents According to Overall Level of Knowledge and Type of Attitude and Practice

	n	%
Knowledge (Total = 13)		
Good (>= 75% or 10-13 points)	116	40.7
Poor (<75% or 0-9 points)	169	59.3
Attitude (Total = 11)		
Positive (>= 75% or 8-11 points)	223	78.2
Negative (<75% or 0-7 points)	62	21.8
Practices (Total = 6)		
Correct (>= 75% or 5-6 points)	183	64.2
Wrong (<75% or 0-4 points)	102	35.8

As seen in Table 6, a significant relationship was found between the level of knowledge and age (p=0.000), monthly income (p=0.020), and dog ownership (p=0.047). Those found to have good knowledge were respondents 26-40 years old, earning 15,000-29,999 pesos per month, and non-dog owners.

Table 6. Association of Respondents’ Profile with Level of Knowledge

Characteristics	Level of Knowledge		P-value
	Good n (%)	Poor n (%)	
Age (years)			0.000
18-25	4.6	18.6	
26-40	19.3	15.4	
41-64	14	22.8	
65 and above	2.8	2.5	
Gender			0.407
Male	9.5	16.8	
Female	31.2	42.5	
Marital status			0.571
Single	10.9	20	
Married	24.6	33	
Separated	3.2	3.2	
Widow/Widower	2.1	3.2	
Educational attainment			0.391
Elementary	3.9	3.5	
Highschool	17.5	29.5	
College	13.7	20.7	
Post-graduate	5.6	5.6	
Monthly income (Php)			0.020
>50,000	0.7	2.5	
30,000-50,000	2.1	1.4	
15,000-29,999	5.6	2.5	
6,000-14,999	10.2	17.5	
<6,000	22.1	35.4	
Dog owner			0.047
Yes	14.4	28.4	
No	26.3	30.9	
Dogs owned (#)			0.120
1	8.1	12.6	
2	4.6	11.2	
3 or more	1.8	4.6	
Pets other than dogs			0.107
Yes	11.6	11.6	
No	29.1	47.7	
History of dog bite			0.203
Yes	7.0	14.4	
No	33.7	44.9	

Attitude was significantly related with age (p=0.000), marital status (p=0.046), monthly income (p=0.007), dog ownership (p=0.000), and number of dogs owned (p=0.000). Respondents who were 65 years old and above, separated, and earned >50,000 pesos monthly had positive attitude. Non-dog owners were also found to have positive attitude compared to those who had 2 or more dogs (Table 7).

Table 7. Association of Respondents' Profile with Type of Attitude

Characteristics	Type of Attitude		P-value
	Positive n (%)	Negative n (%)	
Age (years)			0.000
18-25	12.6	10.5	
26-40	31.2	3.5	
41-64	29.5	7.4	
65 and above	4.9	0.4	
Gender			0.952
Male	20.4	6.0	
Female	57.9	15.8	
Marital status			0.046
Single	21.4	9.5	
Married	46.3	11.2	
Separated	6.0	0.4	
Widow/Widower	4.6	0.7	
Educational attainment			0.226
Elementary	6.3	1.1	
Highschool	35.8	11.2	
College	26	8.4	
Post-graduate	10.2	1.1	
Monthly income (Php)			0.007
>50,000	3.2	0	
30,000-50,000	3.2	0.4	
15,000-29,999	7.0	1.1	
6,000-14,999	17.9	9.8	
<6,000	47	10.5	
Dog owner			0.000
Yes	28.4	14.4	
No	49.8	7.4	
Dogs owned (#)			0.000
1	15.4	5.3	
2	8.8	7.0	
3 or more	4.2	2.1	
Pets other than dogs			0.770
Yes	18.6	4.6	
No	59.6	17.2	
History of dog bite			0.936
Yes	16.55	4.9	
No	61.8	16.8	

Practices were significantly associated with educational attainment ($p=0.043$) and most college graduates had correct practices (Table 8).

The association of KAP to one another was determined using the Chi-square test. As shown in Tables 9-10, knowledge had a significant relationship with attitude ($p=0.000$) and practice ($p=0.044$). There was no significant association between attitude and practice (Table 11).

Table 8. Association of Respondents' Profile with Type of Practice

Characteristics	Type of Practice		P-value
	Correct n (%)	Wrong n (%)	
Age (years)			0.530
18-25	14.7	8.4	
26-40	22.8	11.9	
41-64	22.5	14.4	
65 and above	4.2	1.1	
Gender			0.511
Male	17.9	8.4	
Female	46.3	27.4	
Marital status			0.439
Single	21.1	9.8	
Married	34.7	22.8	
Separated	4.6	1.8	
Widow/Widower	3.9	1.4	
Educational attainment			0.043
Elementary	3.2	4.2	
Highschool	30.5	16.5	
College	24.6	9.8	
Post-graduate	6.0	5.3	
Monthly income (Php)			0.068
>50,000	2.1	1.1	
30,000-50,000	2.1	1.4	
15,000-29,999	7.4	0.7	
6,000-14,999	16.1	11.6	
<6,000	36.5	21.1	
Dog owner			0.967
Yes	27.7	15.1	
No	36.5	20.7	
Dogs owned (#)			0.465
1	11.9	8.8	
2	11.2	4.6	
3 or more	4.6	1.8	
Pets other than dogs			0.134
Yes	16.8	6.3	
No	47.4	29.5	
History of dog bite			0.056
Yes	16.1	5.3	
No	48.1	30.5	

Table 9. Association of the Level of Knowledge to Type of Attitude

Knowledge		Attitude		P-value
		Positive n (%)	Negative n (%)	
Knowledge	Good n (%)	112 (96.6%)	4 (3.4%)	0.000
	Poor n (%)	111 (65.7%)	58 (34.3%)	

Table 10. Association of the Level of Knowledge to Type of Practice

Knowledge		Practice		P-value
		Correct n (%)	Wrong n (%)	
Knowledge	Good n (%)	83 (71.6%)	33 (28.4%)	0.044
	Poor n (%)	100 (59.2%)	69 (40.8%)	

Table 11. Association of Type of Attitude to Practice

		Attitude		P-value
		Positive n (%)	Negative n (%)	
Practice	Correct n (%)	142 (77.6%)	41 (22.4%)	0.836
	Wrong n (%)	81 (79.4%)	21 (20.6%)	

DISCUSSION

Rabies, due to its deadly and incurable nature, remains to be an important public health concern. However, only a few studies have looked into KAP on rabies in the developing world.

Our study showed that majority of respondents had poor overall knowledge on rabies. In a study by Bundalian et al. done in Pampanga, Philippines, 53.6% of participants did not believe that rabies has no cure.⁵ Studies report this as a common myth among the general public since swine flu and anthrax, which are common zoonotic diseases like rabies, have known cures.⁶ Similar to our results, a study in Cambodia by Khan et al., showed that only a few knew that rabies can be transmitted through scratches and licks by an infected animal.⁷ This can be explained by the absence of bleeding and the small breaks in the skin which make these kinds of wounds less alarming. However, a rabies death review from India showed that 5 out of 19 deaths were because of lack of post-exposure prophylaxis for abrasions and scratches without bleeding, as these were thought to pose no risk for rabies.⁸ Lastly, more than 50% of respondents in this study were not aware that the incubation period of rabies in humans can range from a few days to several years. This is consistent with the findings of Kabeta et al. where 90% estimated the maximum incubation period to be less than 40 days.⁹ Unknown to many, the incubation period depends on the site of the bite and is shorter for bites near the head and neck (mean = 35 days) than in the upper and lower limbs (mean = 64 and 89 days, respectively).¹⁰

Attitude and practices among the respondents were generally positive. Of note, however, is that majority of respondents were not in

favor of euthanasia and leashing or caging dogs, thinking these practices are inhumane. This is in contrast with the study done in Sri Lanka by Matibag et al. where 71% would have their pets euthanized if it was suspected to be rabid.¹¹ In a study by Bundalian et al., 63.2% believed that leashing or caging pets is not cruel and can help in controlling rabies.⁵

As to practices, similar results were gathered in a study conducted in Bicol, Philippines by Barroga et al. where 29% of the respondents used “tandok”.¹² In a study by Sosa, Marinduqueños continue to patronage “tandok” because of the expensive cost of vaccines, the distance in accessing healthcare, and the belief that tandok is as effective as medical interventions.¹³ Applying herbal medicines on bites is not unique to the Philippines. Bite victims from Cambodia and India apply topical turmeric pastes and red chilies to the wound and take herbal roots as home remedies.^{14,15} Discontentment with standard treatment, positive experiences associated with herbal medicines, and family traditions are the common reasons why this practice continues to expand rapidly across the globe.¹⁶ These wrong practices warrant more attention since widespread use of traditional remedies contributed to the discontinuation of vaccination in Ethiopia. This explains why most fatal human cases recorded were associated with herbal remedies where majority of human rabies were treated by traditional healers.⁹

In the association of KAP to the respondents’ profile, educational attainment was not significantly related to knowledge of rabies. This suggests that schools are not the only source of information on rabies.

In terms of attitude, higher earning individuals also had a positive attitude towards rabies although they comprised only 3.2% of the population sampled.

We noted that non-dog owners have good knowledge and positive attitude compared to those who own 2 or more dogs. This suggests that those who are more knowledgeable are more aware of the

danger of rabies infection which could have affected their decision in owning a dog. This key finding in our study should warrant attention since dog owners are expected to take full responsibility for their pets and should therefore have good knowledge and a positive attitude about rabies. This is contrary to the findings of Matibag et al. in Sri Lanka where non-pet owners lacked awareness on the disease.¹¹

Despite efforts of the government to disseminate information and raise awareness about rabies, knowledge gaps and adherence to traditional beliefs remain to be a problem in the community. Results of this study suggest that the implementation of the rabies control program should be done more intensely and extensively and should focus on marginalized areas including Barangay Sambag I in Cebu, Philippines. Putting more emphasis on information, education, and communication (IEC) campaigns could greatly improve the KAP levels in the community. This has been demonstrated in a few KAP studies on rabies previously carried out in the Philippines. In Bohol, results have shown that knowledge had the greatest effect on practices, thus, a program with emphasis on education was implemented.¹⁷ Similar results have been reported in Pampanga where advocacy and education on the Anti-Rabies Act were strengthened.⁵ In Bicol, students were targeted so rabies concepts were incorporated into the school curriculum and an information dissemination campaign was also regularly done during the national celebration of the Rabies Awareness Month.¹² Lastly, a study in Leyte utilized IEC activities which focused more on adult education to counter the persistence of traditional beliefs. This included seminars and short meetings on rabies held in barangay halls with more rabies information in mainstream media such as television, radio, and newspapers.⁴ In addition, since this community prefers for dogs to roam freely, mass dog vaccination should be effectively implemented and sustained, as what was done in Sri Lanka.¹¹

The choice of the population in this study was limited to the primary caregivers of children 0-18

years old in Barangay Sambag I, Cebu City. The results were also limited to the responses based on the survey tool. Therefore, generalizability of results will be limited to communities similar to Barangay Sambag I. Lastly, this study focused on dog bite, which is the main mode of rabies transmission in the Philippines and other animal bites that can also cause rabies were not included.

Based on the results of this study wherein knowledge on rabies was alarmingly low, the researcher recommends the immediate and mandatory implementation of self-sustaining rabies programs in the community. This should include continuous regular information campaigns directed especially towards dog owners, regulation of the practice of traditional faith healers, implementation of ordinances & imposition of penalties for violators and establishment of a proper referral system for dog bite incidents. Additionally, the researcher recommends that future studies be made with a larger scope especially since no KAP studies on rabies have been conducted yet in Cebu City as of this time. Further studies need to explore other areas of KAP including signs and symptoms of rabies and sources of rabies information. In the future, a program evaluation study can be made to measure the impact of rabies awareness programs on case reduction.

CONCLUSION

Based on our study, majority of primary care providers in Barangay Sambag I had poor overall knowledge on rabies. Misconceptions on transmission, incubation period and incurability of rabies were noted. A considerable proportion had positive attitude and correct practices although cultural beliefs continued to influence practices (consulting a faith healer, applying herbal medications, and performing “tandok” after a bite).

CONFLICT OF INTEREST

None declared.

REFERENCES

1. Hampson K, Coudeville L, Lembo T, Sambo M, Kieffer A, Attlan M, et al. Correction: Estimating the global burden of endemic canine rabies. *PLOS Neglected Tropical Diseases* [Internet]. 2015 Mar 11 [cited 2022 Sept 22];9(5). Available from: <https://doi.org/10.1371/journal.pntd.0003786>
2. Department of Health Website. Rabies Prevention and Control Program [Internet]. Department of Health; 2020 [updated 2020 Feb 14 cited 2023 Mar 20]. Available from: <https://doh.gov.ph/national-rabies-prevention-and-control-program>
3. World Health Organization. Who expert consultation on rabies: Third report [Internet]. World Health Organization. World Health Organization; 2018 [cited 2023 Mar 20]. Available from: https://apps.who.int/iris/handle/10665/272364?fbclid=IwAR0K3vSutDmM2b1HneoRI4xYdFgTJAXNh66j12CNqWcCLo7SiENhWrm-_KY
4. Lañada E, Quilicot AM, Balala L, Cortez E, Peña S, Torregoza R, et al. Knowledge, attitudes, and practices relating to rabies control in Baybay City, Leyte, Philippines. *Annals of Tropical Research* [Internet]. 2019 [cited 2021 June 6];41(2):1–17. Available from: <https://doi.org/10.32945/atr4121.2019>
5. Bundalian RJ, Lacson M, Bacani C, Soriano DR, Garing A, Aquino AJ, et al. A study on knowledge, attitudes, and practices on rabies in the Philippines. *Kesmas: National Public Health Journal* [Internet]. 2020 [cited 2021 May 25];15(4). Available from: <http://dx.doi.org/10.21109/kesmas.v15i4.3811>
6. Rohde RE. Common myths and legends of rabies. In: *Rabies*. Elsevier [Internet] 2020 [cited 2023 Jul 2]; 68-78. Available from: <https://doi.org/10.1016/B978-0-323-63979-8.00005-2>
7. Khan A, Ayaz R, Mehtab A, Naz K, Haider W, Gondal MA, et al. Knowledge, Attitude & Practices (KAPs) regarding rabies endemicity among the community members, Pakistan. *Acta Tropica* [Internet]. 2019 Dec [cited 2021 May 28];200:105156. Available from: <https://doi.org/10.1016/j.actatropica.2019.105156>
8. Bharti O, Chand R, Chauhan A, Rao R, Sharma H, Phull A. “Scratches/abrasions without bleeding” cause rabies: A 7 years rabies death review from Medical College Shimla, Himachal Pradesh, India. *Indian Journal of Community Medicine* [Internet]. 2017 Oct-Dec [cited 2024 May 28];42(4):248. Available from: https://doi.org/10.4103/ijcm.ijcm_37_17
9. Kabeta T, Deresa B, Tigre W, Ward MP, Mor SM. Knowledge, attitudes and practices of animal bite victims attending an anti-rabies health center in Jimma Town, Ethiopia. *PLOS Neglected Tropical Diseases* [Internet]. 2015 Jun 26 [cited 2022 Sept 21];9(6). Available from: <https://doi.org/10.1371/journal.pntd.0003867>
10. Ghosh S, Rana S, Islam K, Chowdhury S, Haider N, Kafi MA, et al. Trends and Clinico-epidemiological features of Human Rabies Cases in Bangladesh 2006–2018. *Scientific Reports* [Internet]. 2020 Feb [cited 2024 May 28];12;10(1). Available from: <https://doi.org/10.1038/s41598-020-59109-w>
11. Matibag GC, Kamigaki T, Kumarasiri PV, Wijewardana TG, Kalupahana AW, Dissanayake DR, et al. Knowledge, attitudes, and practices survey of rabies in a community in Sri Lanka. *Environmental Health and Preventive Medicine* [Internet]. 2007 Mar [cited 2022 Sept 21];12(2):84–9. Available from: <https://doi.org/10.1007/BF02898154>
12. Barroga T, Basitan I, Lobete T, Bernales R, Gordoncillo M, Lopez E, et al. Community awareness on rabies prevention and control in Bicol, Philippines: Pre- and Post-Project Implementation. *Tropical Medicine and Infectious Disease* [Internet]. 2018 [cited 2021 Jun 6];3(1):16. Available from: <https://doi.org/10.3390/tropicalmed3010016>
13. Sosa B III. Influence of Traditional Medicine (Tandok and Tawak) on Marinduquenos’ Knowledge, Attitudes and Practices on Handling Animal Bites. *Philippine Journal of Science* [Internet]. 2016 Jun [cited on 2023 Jul 2];145(2):189–96. Available from: <https://philjournalsci.dost.gov.ph/home-1/47-vol-145-no-2-june-2016/563-influence-of-traditional-medicine-tandok-and-tawak-on-marinduquenos-knowledge-attitudes-and-practices-on-handling-animal-bites>
14. Lunney M, Fèvre SJS, Stiles E, Ly S, San S, Vong S. Knowledge, attitudes and practices of rabies prevention and dog bite injuries in urban and peri-urban provinces in Cambodia, 2009. *International Health* [Internet]. 2012 [cited on 2021 May 26];4(1):4–9. Available from: <https://doi.org/10.1016/j.inhe.2011.12.001>
15. Prakash M, Bhatti VK, Venkatesh G. Rabies menace and control – an insight into knowledge, attitude and practices. *Medical Journal Armed Forces India* [Internet]. 2013 [cited 2022 Sept 21];69(1):57–60. Available from: <https://doi.org/10.1016/j.mjafi.2012.08.022>
16. Welz AN, Emberger-Klein A, Menrad K. Why people use herbal medicine: insights from a focus-group study in Germany. *BMC Complement Altern Med* [Internet]. 2018 [cited on 2023 Jul 3];18(1). Available from: <http://dx.doi.org/10.1186/s12906-018-2160-6>



17. Davlin sl, Lapiz sm, Miranda me, Murray ko. Knowledge, attitudes, and practices regarding rabies in Filipinos following implementation of the Bohol Rabies Prevention and Elimination Programme. *Epidemiology and Infection* [Internet]. 2013 [cited on 2021 May 25];142(7):1476–85. Available from: <https://doi.org/10.1017/S0950268813002513>