

KNOWLEDGE, ATTITUDE AND PRACTICE TOWARDS
VACCINATION IN HORSES AMONG HORSE KEEPERS IN
KELANTAN

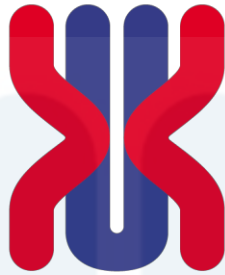
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DEGREE OF VETERINARY MEDICINE

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**Knowledge, Attitude and Practices Towards Vaccination in Horses
among Horse Keepers in Kelantan**

By

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A research paper submitted to the Faculty of Veterinary Medicine, Universiti
Malaysia Kelantan in partial fulfillment of the requirements for the degree of

Doctor of Veterinary Medicine

Faculty of Veterinary Medicine

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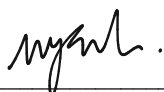
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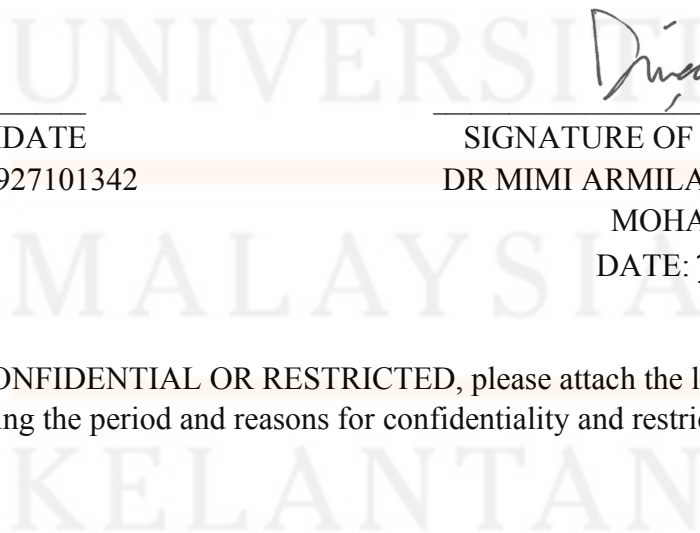
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Knowledge, Attitude and Practices towards Vaccination in Horses among Horse Keepers in Kelantan

ABSTRACT

An abstract of the research paper presented to the Faculty of Veterinary Medicine, Universiti Malaysia Kelantan, in partial requirement of the course DVT 55204 – Research Project.

Vaccination is one of the best measures in preventing infectious diseases in horses. The cross-sectional study assessed the knowledge, attitude, and practice (KAP) levels, as well as associating the values with the sociodemographic characteristics and measuring the correlation between the levels of KAP of 100 horse keepers in Kelantan regarding horse vaccination. The data were descriptively analyzed and associations were determined using the Chi-square test and Pearson Analysis with IBM SPSS version 29. The levels of KAP were determined using Bloom's cut-off point. Data analysis revealed that most respondents had good attitudes (52%) but poor knowledge and practices (40% each). Significant associations were indicated ($p < 0.05$) between education level, sources of information, and purpose of horse ownership with KAP levels. There are significant positive correlations among knowledge, attitude, and practice scores, with the strongest association observed between knowledge and practice ($r = 0.598$, $p < 0.001$), highlighting the interdependence of these variables in horse vaccination behavior. In conclusion, this study highlights the critical need to enhance the knowledge and practices of horse keepers in Kelantan regarding vaccination through targeted educational interventions and improved access to reliable information.

Keywords: Vaccination; Horse Keepers; Knowledge, Attitude and Practices of Horse Keepers; Kelantan

Pengetahuan, Sikap dan Amalan terhadap Vaksinasi pada Kuda dalam kalangan Penjaga Kuda di Kelantan

ABSTRAK

Abstrak daripada kertas penyelidikan yang dibentangkan kepada Fakulti Perubatan Veterinar, Universiti Malaysia Kelantan, sebagai keperluan sebahagian daripada kursus DVT 55204 – Projek Penyelidikan.

Vaksinasi adalah salah satu langkah terbaik untuk mencegah penyakit berjangkit pada kuda. Kajian keratan rentas ini menilai tahap pengetahuan, sikap dan amalan (knowledge, attitude, and practice, KAP) serta mengaitkan nilai-nilai tersebut dengan ciri sosiodemografi dan mengukur hubungan antara tahap-tahap KAP dalam kalangan 100 orang penjaga kuda di Kelantan mengenai vaksinasi kuda. Data dianalisis secara deskriptif, dan hubungan ditentukan menggunakan ujian Chi-square dan Analisis Pearson dengan IBM SPSS versi 29. Tahap KAP ditentukan berdasarkan titik potong Bloom. Analisis data menunjukkan kebanyakan responden mempunyai sikap yang baik (52%) tetapi pengetahuan dan amalan yang lemah (masing-masing 40%). Terdapat hubungan yang signifikan ($p < 0.05$) antara tahap pendidikan, sumber maklumat dan tujuan pemilikan kuda dengan tahap KAP. Terdapat korelasi positif yang signifikan antara skor pengetahuan, sikap dan amalan dengan hubungan terkuat diperhatikan antara pengetahuan dan amalan ($r = 0.598$, $p < 0.001$), yang menekankan saling kaitan antara pembolehubah ini dalam tingkah laku vaksinasi kuda. Kesimpulannya, kajian ini menekankan keperluan untuk meningkatkan pengetahuan dan amalan penjaga kuda di Kelantan mengenai vaksinasi melalui intervensi pendidikan yang disasarkan dan peningkatan akses kepada maklumat yang boleh dipercayai.

Kata kunci: Vaksinasi; Pengetahuan, Sikap dan Amalan Penjaga Kuda; Kelantan

CERTIFICATION

This is to certify that we have read this research paper entitled '**Knowledge, Attitude and Practices towards Vaccination in Horses among Horse Keepers in Kelantan**' by **Mysarah binti Ursilan Afandi**, and in our opinion, it is satisfactory in terms of scope, quality, and presentation as partial fulfillment of the requirements for the course DVT 55204 – Research Project.



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DEDICATION

Special thanks to those who have given their support, guidance, advice, and aid for the completion of this project paper:

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Thank You

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LIST OF ABBREVIATIONS

- KAP - Knowledge, Attitude and Practice
EI - Equine Influenza
EHV - Equine Herpes Virus
JE - Japanese Encephalitis
SD - Standard Deviation



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LIST OF SYMBOLS

%	Percentage
n	Total Number
<	Less than
>	More than



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CHAPTER 1

INTRODUCTION

1.1 Research Background

Since the late 20th century, the equine industry in Malaysia has been moderately growing as this field has intrigued the public although it is still considered small and limited in comparison to other developed countries (Hanis et al., 2020). However, with the developing interest towards this sector, the number of imported and domesticated horses has progressively increased for the utilization of various purposes. These horses are many of which are owned by government equine bodies, equine centers, turf clubs as well as individually owned. Majority of it is used for sports such as endurance, dressage, jumping, racing and polo. However, there are also horses that are kept and used for agritourism, hippotherapy services and leisure rides purposes.

In Kelantan however, horses are mainly kept as a hobby and not usually for business purposes. These horses would be used in traditional game; horse racing, which is very well-known in Kelantan (Mohamed, 2019). Unlike in the urban areas where rearing horses is a game for the rich because it is costly (Darmansah et al., 2017), in Kelantan, horses are also kept by middle class and lower class workers (Mohamed, 2019).

The welfare of the horse has to be every horse owner and keeper's top priority, provided by basic care which comprises proper management, housing, feeding and husbandry. This includes routine vaccinations for preventive health care. With more equestrian events held throughout the year, the involvement of the movement of horses in and out of the country and in between states causes concern towards spread of diseases. One of the most effective ways to protect horses from infectious diseases is through vaccination (Paillot et al., 2017).

There are many vaccines for horses that are available on the market, for example, vaccines for rabies, encephalomyelitis, tetanus, influenza, equine herpesvirus 1 and 4, equine viral arteritis, rotavirus, etc (Stewart, 2022). According to the Equine Association of Malaysia, all horses have to receive tetanus vaccine annually, and competing horses would also have to receive vaccination against Equine Influenza (EI) and Japanese Encephalitis (JE). For the horses at the turf clubs, it is compulsory for the horses to also be vaccinated against Equine Herpesvirus.

1.2 Research Problem Statement

In recent years, the growth of the equine industry has increased the number of imported and local horses in Malaysia. These horses are bought and owned by both experienced horse keepers, as well as new horse keepers. Kelantan being one of the states known for its equine activities contributes to a large population of horses in Malaysia. However, the majority of the horses, especially the native ponies, are kept with minimal care and management. Besides that, being so close to the border of Thailand, many of the horses are imported from Thailand in which some are illegally brought in. Without a doubt, this could increase the chances of any unwanted disease outbreaks. With no available data on the knowledge, attitude and practice of vaccination of horses in Kelantan, there are minimal efforts in emphasizing the importance of vaccinating horses to these horse keepers. Hence, the vaccination status in the east coast region requires attention.

1.3 Research Questions

1) What is the level of knowledge among horse keepers about vaccination of horses in Kelantan?

- 2) What is the attitude of horse keepers towards vaccination of horses in Kelantan?
- 3) What are the practices among horse keepers towards vaccination of horses in Kelantan?
- 4) What are the factors associated with the level of KAP among the socio-demographic variables

1.4 Research Hypothesis

- 1) Horse keepers in Kelantan have poor knowledge about vaccination of horses.
- 2) Horse keepers in Kelantan have poor attitudes toward vaccination of horses.
- 3) Horse keepers in Kelantan have poor practice in vaccinating their horses.
- 4) The socio-demographic factors are associated with the level of KAP

1.5 Research Objectives

To determine the knowledge, attitude and practice on vaccination of horses among horse keepers in Kelantan and the association between socio-demographic variables with level of KAP towards vaccination of horses.

CHAPTER 2

LITERATURE REVIEW

2.1 Socio-demographic of horses in Kelantan

Kelantan is a state where horses are kept as a hobby and is known for their traditional game of horse racing. Kelantanese are accustomed to owning horses, regardless of their financial status, as it is not a game just for the rich in Kelantan (Mohamed, 2019). A study conducted in recent years shows that 45.5% horse owners in Kelantan own less than 2 horses (Liew, 2022). Common horse breeds in Kelantan include native pony, Kelantan ponies and Anglo-arab, which majority would cross breed between native pony and Anglo-arab (Mohamed, 2019). These horses, particularly Kelantan ponies, are often kept in poor traditional management yet they are strong and have high resistance against diseases (Ahmad & Yusoff, 1999).

Although Kelantan has its own native breeds, the locals still buy and import horses from other states and countries. Being so close to Thailand, the horses are usually imported or illegally smuggled (Rajdi et al., 2020). The importation of horses into the country could be one of the major sources of potential disease outbreak. Although there are usually mandatory tests required for imported horses (Rajdi et al., 2020), it does not cover all diseases hence some diseases might not be detected. Besides that, horses travelling from one state to the other does not require testing. This could increase chances of disease spreading especially if the horses are smuggled and/or unhealthy.

2.2 Vaccine

A functioning immune system, which consists of innate immunity and active immunity, is necessary for the body to be able to fight against diseases (Evans & Rood, 2008). The

administration of antigenic materials as a way to stimulate the immune system for the purpose of developing active immunity towards pathogens is known as vaccination (Mayaki & Talabi, 2015). It works by “teaching” the immune system to identify and memorize the unknown pathogens. The immune system would have memory cells specific to an antigen after vaccination. In the event of encountering the disease again, the immune system would be able to rapidly opsonize the pathogen (Yadav et al., 2020). As mentioned by Desanti-Consoli et al. (2022), vaccination against infectious diseases is a cornerstone of veterinary medicine in the prevention of disease transmission, illness severity, and often death in animals. Horses are usually immunized against pathogens that can cause diseases that are endemic in the equine population as a whole (Holmes et al., 2006). An unvaccinated horse may nevertheless develop immunity, however, the horse must first be infected by the disease which could result in death hence this is not an option (Mayaki & Talabi, 2015).

2.3 Types of Vaccine

Equine vaccines can be categorized into two main types: core vaccines and non-core vaccines. Core vaccines are vaccines for endemic diseases, highly contagious and severe diseases and diseases concerning public health (Desanti-Consoli et al., 2022). While, the necessity of non-core vaccines ought to be determined by a risk assessment of each patient, risk of exposure and susceptibility to the disease (Malter et al., 2022). According to the Equine Association of Malaysia, all horses must be vaccinated against tetanus once a year. Vaccination against Japanese Encephalitis (JE) and Equine Influenza (EI) is, however, compulsory only for competing horses (Equine Association of Malaysia, n.d.). According to the Malaysian Racing Association, besides the other 3 stated vaccines, racing horses would also have to receive vaccination against equine herpesvirus. The approved veterinary vaccine for equines in Malaysia are Prestige 2, Duxavyn

EHV 1,4, Proteqflu-TE, Proteqflu, Tetapur, Equilis Te and Jap-B (Kementerian Pertanian dan Keterjaminan Makanan, 2024). Commercialized vaccines can be classified into several categories, including DNA, recombinant, subunit, inactivated, and live attenuated vaccines (Kapoor, 2014). Currently, most vaccines are whole viral vaccines, either live or killed vaccines. But new developments in molecular biology have offered other approaches for vaccine creation (Yadav et al., 2020). Killed vaccine loses its multiplication ability and other viral components except the pathogen's natural form of immunogenic structure, necessary for the formation of protective immunity. However, the induced immunity would decline throughout the animal's lifetime, hence requires booster (Yadav et al., 2020). Prestige 2, Duxavyn EHV 1,4, Equilis Te and Jap-B are killed vaccine (Kementerian Pertanian dan Keterjaminan Makanan, 2024). Recombinant vaccines such as Proteqflu and Proteqflu-TE, introduces the microbial DNA into the host by using an attenuated virus or bacterium. The harmless bacterium would induce an immune response by mimicking the infection of a harmful microbe (Kementerian Pertanian dan Keterjaminan Makanan, 2024; Yadav et al., 2020). Tetapur is a toxoid vaccine (Kementerian Pertanian dan Keterjaminan Makanan, 2024). Toxoid vaccines induce antitoxoid antibodies which neutralizes the negative effect of exotoxin by binding with it. It is created by purifying the bacterial exotoxin (Yadav et al., 2020).

2.4 Knowledge, Attitude and Practice Model

Knowledge, attitude, and practice (KAP) surveys help gather data on what a particular demographic knows, believes, and does (Taylor & Francis, 2020). Lack of information on the importance of equine vaccination is the result of poor knowledge among horse owners (Mayaki & Talabi, 2015). As mentioned by Taylor & Francis (2020), knowledge directly influenced attitudes.

For this reason, it's crucial that horse owners comprehend that a good vaccination practice is a crucial point of good managerial practices (Mayaki & Talabi, 2015). The inability to comply to a proper vaccination schedule could pose risk to both the individual and the herd (Paillot et al., 2017).



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CHAPTER 3

RESEARCH METHODOLOGY

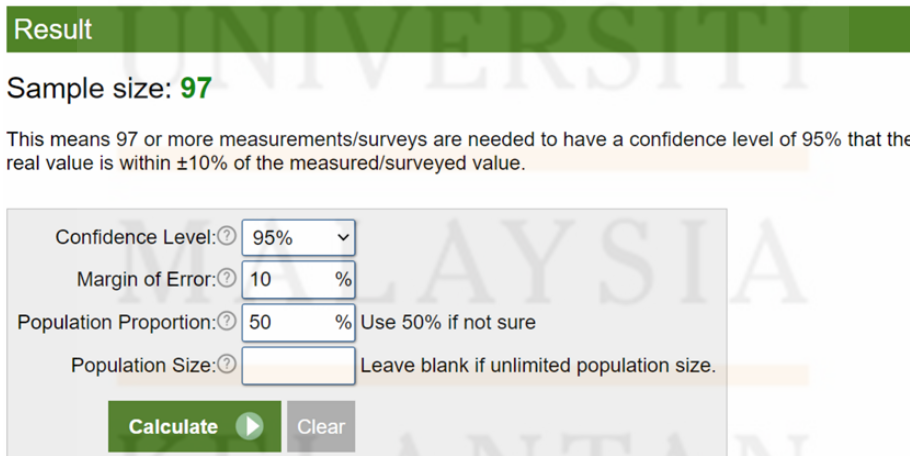
3.1 Study Area and Design

This cross-sectional study was conducted from October 1, 2024 until November 1, 2024. It was conducted among horse owners and keepers that are in Kelantan, Malaysia.

3.2 Sample Size and Sampling Method

Using a sample size calculator from Calculator.net, a single proportion formula was used to determine the minimum number of sample size needed for this investigation. The confidence level was set at 95%, with population portion, P, at 50% and margin of error at 10%. Upon calculation, the minimum sample size required for this study is 97.

The snowball sampling method was implied, and a total of 100 responses were collected. All the horse owners had the same probability of answering the questionnaires.



The image shows a screenshot of a sample size calculator interface. At the top, there is a green header with the word "Result". Below this, the text "Sample size: 97" is displayed in a bold, green font. Underneath, a note states: "This means 97 or more measurements/surveys are needed to have a confidence level of 95% that the real value is within ±10% of the measured/surveyed value." Below the note is a form with four input fields: "Confidence Level" set to 95%, "Margin of Error" set to 10%, "Population Proportion" set to 50%, and "Population Size" which is empty. To the right of the "Population Proportion" field is the text "Use 50% if not sure", and to the right of the "Population Size" field is "Leave blank if unlimited population size." At the bottom of the form are two buttons: a green "Calculate" button with a play icon and a grey "Clear" button.

Figure 3.2: Sample Size Calculation using Sample Size Calculator from Calculator.Net

3.3 Inclusion and Exclusion criteria

The inclusion criteria are horse keepers including owners or caretakers of at least one horse in the last 5 years, in Kelantan. They must be above 18 years old and able to read, write and understand Bahasa Malaysia or English. They must also be willing to participate in answering the questionnaire. Individuals who do not fulfill the inclusion criteria are excluded from this study.

3.4 Questionnaire Design / Data Collection Tools

The data for this study was collected by self-administration questionnaires using Google Forms and paper-based questionnaires. The Google Form was disseminated via social media platforms; Whatsapp, Facebook and Instagram. The paper-based questionnaires were distributed to stables located throughout Kelantan. The questionnaire was divided into four sections; sociodemographic, knowledge, attitude and practice.

Using the bloom's cut off criterion, the level of KAP will be divided into 'poor', 'moderate' and 'good', based on the total amount of scores each participant receives. The result will be categorised as poor, moderate and good if the score is $< 50\%$, $50\% - 80\%$ and $> 80\%$ respectively.

The knowledge section is to test the understanding of horse owners regarding common infectious horse diseases and horse vaccines. This section contains 13 multichotomous questions, with only two choices of answers; 'Yes' or 'No'. Each response of 'Yes' will be given a score of 1, while for each response of 'No' will be given a score of 0. Respondents with scores of 0-5, 6-10 and 10-13 will be classified as poor, moderate and good respectively.

The attitude and practice section evaluates the level of horse owner's perspective and responsibility towards the care and vaccination of horses. In the attitude section, it consists of 5

point likert scale, ranging from strongly disagree, disagree, neutral, agree and strongly agree with scores of 1, 2, 3, 4 and 5 respectively. There are 4 questions in this section and the ranges of scores are 0-9, 10-15 and 16-20 for poor, moderate and good respectively.

The practice section has five questions in total and it uses a likert scale as well, however, in this section it consists of Never, Sometimes and Often with scores of 0, 1 and 2 respectively. Respondents with a score of 0-4 are considered to have poor practice, a score 5-7 are considered to have moderate practice and a score of 8-10 are considered to have good practice.

3.5 Pilot Study

The questionnaire was developed in English and translated into Malay language. The content was evaluated by two veterinarian lecturers for content validation. A pilot test was conducted prior to the actual study, involving 19 respondents who met the criteria for this study. With the results obtained, Cronbach's alpha was conducted on each section; knowledge, attitude and practice, to measure the reliability. Measurement of more than 0.7 indicates an acceptable internal consistency reliability and the values obtained were 0.789, 0.810 and 0.665 for knowledge, attitude and practice respectively.

3.6 Data Analysis

The data collected were sorted in Microsoft Excel and were analysed using IBM SPSS version 29. The categorical variables were descriptively analysed in frequency (percentage %), while the numerical data were analysed in mean and standard deviation. The chi-square test was used to check the association between knowledge, attitude and practice with the socio-

demographic variables. The total scores for each knowledge, attitude and practice were measured based on bloom's criteria. The Pearson Correlation test was used to measure the correlation between total scores of knowledge, attitude and practice. The results were all tabulated accordingly. A P-value of less than 0.05 was considered as a level of statistical significance.

3.7 Ethical Consideration

Human ethics approval was required as it involves human respondents. The approval to conduct research involving human was approved by the Institutional Human Care and Use Committee, with the approval code of UMK/FPV/HUMAN/EXT/0005/2024

CHAPTER 4

RESULT

4.1 Socio-demographic characteristics of respondents

There are a total of 100 respondents and the majority were male (80%), aged between 18-30 years old (44%) with secondary education as their highest education level (42%). Majority of the respondents own less than 2 horses (38%) and they are managed inside individual stables (90%). Twenty-nine percent of the respondents have owned horses for more than 15 years, with thirty-seven percent of horses kept for hobby purposes. Most of the respondents are horse owners (63%) with no source of information regarding vaccinations of horses (38%).

Table 4.1: Respondents' socio-demographic characteristics

Socio-demographic characteristics		Total (n=100)	
		n	%
Gender	Male	80	80
	Female	20	20
Age	18 - 30	44	44
	31 - 45	32	32
	> 45	24	24
Highest Level of Education	No Formal Education	10	10
	Primary	7	7
	Secondary	42	42

	Tertiary	41	41
Years of Horse Ownership	< 1 year	9	9
	1 - 5 years	25	25
	6 - 10 years	20	20
	11 - 15 years	17	17
	> 15 years	29	29
Number of Horses Owned	< 2	38	38
	3 - 5	31	31
	6 - 10	19	19
	> 11	12	12
Purpose of Horses	Hobby	37	37
	Breeding	7	7
	Racing	23	23
	Endurance	20	20
	Equestrian	4	4
	Polo	9	9
Type of Housing Management	Individual Stable	90	90
	Paddock	10	10
Relationship of Horse	Worker	37	37
	Owner	63	63

Where did you obtain informations about vaccination for horses	No source of information	38	38
	Veterinarian	34	34
	DVS	8	8
	Family	4	4
	Online	3	3
	Friends	13	13

4.2 Descriptive analysis of KAP

Based on a sample size of 100 participants, the knowledge score ranges from 0 to 13, with a mean score of 6.50 (SD = 3.948). This indicates moderate variability with some participants showing no knowledge. Attitude has a higher mean score of 14.94 (SD = 3.711), with values ranging from 4 to 20 which indicates that the participants generally have positive attitudes and moderate variability. The score for practice ranges from 0 to 10, with a mean score of 5.27 (SD = 3.081). Similar to knowledge, practice shows moderate level of practice and moderate variability. Overall, the data shows knowledge with the greatest variability while attitude has the highest score.

Table 4.2: Descriptive statistics of Knowledge, Attitude and Practice

Variables	Total (n = 100)			
	Mean	Std. Deviation	Minimum Score	Maximum Score
Knowledge	6.50	3.948	0	13
Attitude	14.94	3.711	4	20
Practice	5.27	3.081	0	10

4.3 Knowledge on vaccination in horses among horse keepers

Table 4.3 highlights horse keepers' knowledge on common diseases and vaccination in horses. A majority of them understand that diseases can be transmitted between horses (78%) and that vaccinations can prevent certain diseases (72%). Awareness of routine vaccinations (69%) and mandatory vaccinations for competitions (71%) is also relatively high. However, knowledge of specific diseases like Japanese Encephalitis (35%) and Equine Herpes Virus (32%) is low, though more participants are aware of tetanus (61%) and Equine Influenza (59%). Regarding side effects, 51% are aware of potential issues post-vaccination, with fever (34%) and swelling (35%) being the most recognized.

Table 4.3: Knowledge on vaccination in horses among horse keepers

Knowledge based item	Total (n=100)			
	Yes		No	
	n	%	n	%
Q1. Are you aware of the occurrence of tetanus in horses?	61	61	39	39
Q2. Are you aware of a disease called Japanese Encephalitis (JE) in horses?	35	35	65	65
Q3. Are you aware of a disease called Equine Influenza in horses?	59	59	41	41
Q4. Are you aware of a disease called Equine Herpes Virus (EHV) in horses?	32	32	68	68
Q5. Do you know that some diseases can easily be transmitted from one horse to another?	78	78	22	22
Q6. Are you aware of the existence of routine vaccination for horses?	69	69	31	31
Q7. Do you know about the mandatory vaccination of horses to participate in competitions?	71	71	29	29

Q8. Do you know certain diseases can be prevented through horse vaccination?	72	72	28	28
Q9. Do you know about any potential side effects that might occur after vaccinating a horse?	51	51	49	49
Q10 - 13. If Yes, please tick any potential side effect(s) that you are aware of below.				
Fever	34	34	66	66
Decreased Appetite	30	30	70	70
Swelling	35	35	65	65
Lethargy	23	23	77	77

4.4 Attitude on vaccination in horses among horse keepers

Based on table 4.4, the majority of the horse keepers (72%) either agree or strongly disagree that vaccination is important for keeping horses healthy, with only a small proportion disagreeing (9%). Similarly, 60% believe it is compulsory for all horses to be vaccinated, while 18% disagree, and 22% remain neutral. Regarding the prevention of infectious diseases through vaccination, 69% agree or strongly agree, while only 9% disagree, and 22% are neutral. For the statement that unvaccinated horses should be kept away from vaccinated ones, 57% agree or strongly agree, 20% disagree, and 23% are neutral.

Table 4.4: Attitude on vaccination in horses among horse keepers

Attitude-based item	Total scale (n=100)									
	Strongly Disagree		Disagree		Neutral		Agree		Strongly Agree	
	n	%	n	%	n	%	n	%	n	%

Q1. I believe that vaccination in horses is important in order to keep them healthy	4	4	5	5	19	19	36	36	36	36
Q2. I believe it is compulsory for all horses to be vaccinated	8	8	10	10	22	22	32	32	28	28
Q3. I believe many infected diseases cases can be prevented through vaccination	3	3	6	6	22	22	37	37	32	32
Q4. I agree that unvaccinated horses should be kept away from vaccinated horses.	10	10	10	10	23	23	36	36	21	21

4.5 Practice on vaccination in horses among horse keepers

Table 4.5 summarizes horse keepers' practices related to horse health and vaccination. A majority (87%) report isolating sick horses from healthy ones, with 44% doing so often and 43% sometimes. Half (50%) take sick horses to the vet sometimes, while 30% do so often, leaving 20% who never take this step. Regarding vaccination, 73% of participants have vaccinated their horses before, though only 37% do so often. Compliance with vaccination schedules is lower, with 32% complying often, 34% sometimes, and another 34% never. Similarly, setting reminders for vaccination schedules is infrequent, with only 24% doing so often, while 46% never do.

Table 4.5: Practice on vaccination in horses among horse keepers

Practice-based items	Total (n=100)					
	Never		Sometimes		Often	
	n	%	n	%	n	%

Q1. Do you isolate your sick horses from the healthy ones?	13	13	43	43	44	44
Q2. Do you take your sick horses to the vet?	20	20	50	50	30	30
Q3. Have your horse been vaccinated before?	27	27	36	36	37	37
Q4. Do you comply with the vaccination schedule of your horse?	34	34	34	34	32	32
Q5. Do you set reminders for your horse vaccination schedule?	46	46	30	30	24	24

4.6 Respondent's level of knowledge, attitude and practice towards vaccination of horses

Table 4.6 summarizes the levels of knowledge, attitude, and practice among participants regarding horse vaccination. In terms of knowledge, 40% of participants fall into the "poor" category, while 30% each have "moderate" and "good" knowledge. For attitude, a majority (52%) exhibit a "good" attitude, 43% are "moderate," and only 5% are categorized as "poor." Regarding practice, 40% of participants demonstrate "poor" practices, 32% fall into the "moderate" category, and 28% have "good" practices.

Table 4.6: Respondents' level of KAP towards vaccination of horses

Variables	Level	Score	<i>n</i> (%)
Knowledge	Poor	0 - 5	40
	Moderate	6 - 9	30
	Good	10 - 13	30
Attitude	Poor	0 - 9	5
	Moderate	10 - 15	43

	Good	16 - 20	52
Practice	Poor	0 - 4	40
	Moderate	5 - 7	32
	Good	8 - 10	28

4.7 Association between respondents' selected socio-demographic characteristics and Knowledge, Attitude and Practice on vaccination of horses

Table 4.7.1 shows the association between socio-demographic characteristics and level of knowledge. Gender, age, years of horse ownership, number of horses owned, and the purpose of horses did not show statistically significant associations with knowledge levels ($p > 0.05$). However, education level ($p = 0.005$) and sources of information for horse vaccination ($p = 0.014$) were significantly associated with knowledge levels, suggesting that higher education and reliable source of information enhances knowledge. Besides that, the relationship with horses (worker vs. owner) was significant ($p = 0.009$), highlighting that ownership correlates with better knowledge. Housing management type (individual stable or paddock) showed no significant relationship ($p = 0.345$).

Table 4.7.2 evaluates association between sociodemographic characteristics and levels of attitudes towards vaccination of horses. Gender, age, years of horse ownership, number of horses owned, and the purpose of owning horses did not show statistically significant associations with attitude levels ($p > 0.05$). However, education level ($p = 0.004$), housing management ($p = 0.019$), and sources of information for horse vaccination ($p = 0.017$) were significantly associated with

attitude levels. These results suggest that higher education, proper housing management (individual stables), and reliable sources of vaccination information are linked to better attitudes toward horse care. The relationship with horses (worker vs. owner) was not significantly associated with attitude levels ($p = 0.134$).

Table 4.7.3 highlights the association between socio-demographic characteristics and level of practice. From the table, it reveals that gender showed a significant association ($p = 0.039$), with males more frequently exhibiting "poor" and "moderate" practices compared to females. The level of education was also strongly associated with vaccination practices ($p = 0.001$), as individuals with tertiary education demonstrated better practices than those with lower education levels. However, age ($p = 0.132$), years of horse ownership ($p = 0.367$), number of horses owned ($p = 0.389$), and housing management ($p = 0.165$) did not show significant relationships with practice levels. The purpose of owning horses was a significant factor ($p = 0.006$), with those owning horses for hobby purposes exhibiting better practices compared to other purposes. The relationship with horses, whether as a worker or owner, showed no significant influence ($p = 0.922$). Importantly, sources of information for horse vaccination had a highly significant impact ($p < 0.001$).

Table 4.7.1: Association between socio-demographic variables and knowledge level

Variables	Knowledge level			Chi-square	p-value
	Poor	Moderate	Good		
Gender				3.281	0.194
Male	35	21	24		
Female	5	9	6		

Age				3.327	0.505
18 - 30	19	15	10		
31 - 45	14	8	10		
> 45	7	7	10		
Education Level				18.333	0.005
No formal education	9	1	0		
Primary	3	2	1		
Secondary	18	15	9		
Tertiary	10	12	19		
Years of Horse Ownership				8.074	0.426
< 1 year	5	3	1		
1 - 5 years	11	8	6		
6 - 10 years	8	8	4		
11 - 15 years	7	5	5		
> 15 years	9	6	14		
Numbers of Horses Owned				4.585	0.598
< 2	19	11	8		
3 - 5	11	11	9		

6 - 10	6	5	8		
> 10	4	3	5		
Purpose of Horses				9.333	0.501
Hobby	15	13	9		
Breeding	1	3	3		
Racing	12	7	4		
Endurance	6	5	9		
Equestrian	1	1	2		
Polo	5	1	3		
Housing Management				2.130	0.345
Individual Stable	37	28	25		
Paddock	3	2	5		
Relationship with Horses				9.338	0.009
Worker	22	8	7		
Owner	18	22	23		
Sources of Information for Horse Vaccination				22.280	0.014
No source of information	21	13	4		
Veterinarian	8	10	16		

DVS	2	1	5		
Family	3	1	0		
Online	0	2	1		
Friends	6	3	4		

Table 4.7.2: Association between socio-demographic variables and attitude level

Variables	Attitude level			Chi-square	p-value
	Poor	Moderate	Good		
Gender				1.795	0.408
Male	4	37	39		
Female	1	6	13		
Age				7.625	0.106
18 - 30	2	18	24		
31 - 45	0	12	20		
> 45	3	13	8		
Education Level				19.257	0.004
No formal education	2	7	1		
Primary	0	6	1		
Secondary	2	18	22		
Tertiary	1	12	28		

Years of Horse Ownership				11.203	0.190
< 1 year	0	5	4		
1 - 5 years	0	9	16		
6 - 10 years	0	10	10		
11 - 15 years	3	8	6		
> 15 years	2	11	16		
Numbers of Horses Owned				8.456	0.207
< 2	2	18	18		
3 - 5	0	17	14		
6 - 10	2	6	11		
> 10	1	2	9		
Purpose of Horses				11.509	0.319
Hobby	2	18	17		
Breeding	0	1	6		
Racing	2	12	9		
Endurance	0	7	13		
Equestrian	1	1	2		
Polo	0	4	5		

Housing Management				7.935	0.019
Individual Stable	3	37	50		
Paddock	2	6	2		
Relationship with Horses				4.106	0.134
Worker	0	19	18		
Owner	5	24	34		
Sources of Information for Horse Vaccination				21.572	0.017
None	4	24	10		
Veterinarian	1	8	25		
DVS	0	5	3		
Family	0	1	3		
Online	0	1	2		
Friends	0	4	9		

Table 4.7.3: Association between socio-demographic variables and practice level

Variables	Practice level			Chi-square	p-value
	Poor	Moderate	Good		
Gender				6.512	0.039

Male	37	23	20		
Female	3	9	8		
Age				7.080	0.132
18 - 30	16	16	12		
31 - 45	15	5	12		
> 45	9	11	4		
Education Level				21.751	0.001
No formal education	9	1	0		
Primary	5	2	0		
Secondary	18	12	12		
Tertiary	8	17	16		
Years of Horse Ownership				8.717	0.367
< 1 year	3	4	2		
1 - 5 years	8	8	9		
6 - 10 years	11	4	5		
11 - 15 years	10	5	2		
> 15 years	8	11	10		
Numbers of Horses Owned				6.314	0.389

< 2	19	11	8		
3 - 5	13	10	8		
6 - 10	5	8	6		
> 10	3	3	6		
Purpose of Horses				24.608	0.006
Hobby	18	10	9		
Breeding	1	3	3		
Racing	16	6	1		
Endurance	3	9	8		
Equestrian	0	1	3		
Polo	2	3	4		
Housing Management				3.601	0.165
Individual Stable	36	31	23		
Paddock	4	1	5		
Relationship with Horses				0.162	0.922
Worker	15	11	11		
Owner	25	21	17		
Sources of Information for Horse Vaccination				46.187	<.001

No Source of Information	29	7	2		
Veterinarian	5	11	18		
DVS	2	4	2		
Family	0	4	0		
Online	1	1	1		
Friends	3	5	5		

4.8 Correlation between total knowledge, attitude and practice score of vaccination in horses

The table 4.8 summarizes the Pearson correlation coefficients and corresponding p-values for the relationships among three variables; Total Knowledge Score (TKS), Total Attitude Score (TAS), and Total Practice Score (TPS). A moderate positive correlation is observed between TKS and TAS ($r = 0.267$, $p = 0.007$), indicating a statistically significant association. Similarly, TKS and TPS show a stronger positive correlation ($r = 0.598$, $p < 0.001$), also significant. Lastly, TAS and TPS exhibit a moderate positive correlation ($r = 0.547$, $p < 0.001$), indicating a significant relationship. All correlations are statistically significant, suggesting good associations among the variables.

Table 4.8: Correlation between total knowledge, attitude and practice score

Pearson Correlation	TKS (p-value)	TAS (p-value)	TPS (p-value)
TKS		0.267 (0.007)	0.598 (< 0.001)
TAS	0.267 (0.007)		0.547 (< 0.001)
TPS	0.598 (< 0.001)	0.547 (< 0.001)	

Correlation is significant at the 0.01 level (2-tailed)

CHAPTER 5

DISCUSSION

This is the first KAP study conducted to determine horse keeper's knowledge, attitude and practice towards vaccination in horses in Kelantan, Malaysia. This study provides critical insights into the (KAP) of horse vaccination among horse owners and keepers. The demographic profile reveals a predominant male participation in this study (80%), which is expected as according to Hedenborg (2015), men and masculinity have always been associated with the equine industry in many regions of the world. Majority of the respondents are within the 18–30 age group (44%), with secondary education being the most common highest educational attainment (42%). The reason for the high number of young age group working with horses may be correlated to the level of education as there is an increasing trend of SPM graduates not to pursue their studies into tertiary education level (Maarof, 2023). Instead, these young individuals would find employment immediately as a result of increasing cost of further education and an unstable national economy (Othman et al., 2023). Many of the respondents have over 15 years of experience with horses (29%), owning less than two horses (38%) which are kept just as a hobby (37%) in individual stables (90%). Sixty three percent are horse owners, with no source of information regarding vaccination (38%).

The level of knowledge for the majority of the respondents was poor. Although most participants were aware that diseases can be transmitted between horses (78%) and that vaccinations can prevent specific diseases (72%), knowledge of certain diseases like Japanese Encephalitis (35%) and Equine Herpes Virus (32%) was notably low. In spite of that, more than half of the participants were aware of the occurrence of tetanus and equine influenza, sixty one

percent and fifty nine percent respectively. The knowledge and recognition of these diseases may be due to familiarity with the name of the disease as the same term; ‘influenza’ and ‘*kancing gigi*’ are used for humans as well. Over half of the participants are aware of potential side effects that may happen post-vaccination (51%), however, the statistics recorded for each types of side effects that may happen were all low cumulatively; 66%, 70%, 65% and 77% voted no on fever, decreased appetite, swelling and lethargy respectively. The logical reason behind this is that some horse keepers might have not noticed these side effects since according to Wilson et al. (2020), most reactions are transient.

Attitudes toward vaccination were generally positive, as reflected by a mean score of 14.94 (SD = 3.711). A majority (72%) agreed with the importance of vaccination for maintaining horse health, and 69% acknowledged its role in preventing diseases. This positive response reflects awareness among horse keepers that many infected diseases can be prevented through vaccination (65%), although some neutral (22%) or disagreeing responses (9%) indicate room for improvement in attitude.

Despite favorable attitudes, vaccination practices were inconsistent, with a mean score of 5.27 (SD = 3.081). Similarly to the level of knowledge, the total score for practice is low. While most participants (73%) reported having vaccinated their horses at least once, only 37% did so regularly. Compliance with vaccination schedules was also inconsistent, with 34% never adhering to schedules. Similarly, setting reminders for vaccinations was infrequent, with 46% never doing so. This discrepancy between level of attitudes and practices may be due to limitations such as

access to veterinary services, geographic location (rural vs. urban) (Covarrubias et al. 2012), high cost of vaccines, distance to sources and lack stock of vaccine (Williams et al., 2022).

Significant associations between KAP and sociodemographic characteristics are measured based on the P-value. A P-value of less than 0.05 is considered as a level of statistical significance. All levels of KAP have significant associations with education level and sources of information. The p-value between education level and KAP are 0.005, 0.004 and 0.001 respectively. While the p-value between source of information and KAP are 0.014, 0.017 and <0.001 respectively. These findings suggest that interventions focusing on educational improvement and enhanced access to accurate and reliable sources of information could further strengthen positive knowledge, attitude and practice. Regardless of whether veterinarians are trained to manage infectious diseases, horse owners themselves have low knowledge in regards to preventing disease (White & Pelzel-McCluskey, n.d.) and horse owners are the ones mainly responsible in management of their horses. Therefore, there is a high possibility that the wellbeing of the horse will be compromised if horse owners lack the necessary knowledge and expertise or if their handling and care methods are based on convenience, anecdotal, and traditional methods rather than information supported by scientific data (Watney et al., 2024). According to Darmansah et al. (2017b), there are only three universities that offer education related to the horse, hence more efforts in expanding knowledge regarding horses is needed.

Significant associations between attitude levels and housing management ($p=0.019$) reinforce the idea that better infrastructure can positively influence attitude. Conversely, the lack of association with ownership status ($p = 0.134$) suggests that fostering positive attitudes is

universally relevant, regardless of the relationship with horses. Gender ($p=0.039$) are significantly associated with better practices. This demonstrates that females have better compliance than males as usually the ones responsible for healthcare related issues, including vaccination, are female (Shepherd, n.d.).

The correlation among knowledge, attitude and practices is significant, with moderate to strong positive correlations between these variables. The strongest association between knowledge and practice ($r=0.598$, $p < 0.001$) suggests that improving knowledge can directly enhance vaccination practices. Similarly, the correlation between attitudes and practices ($r = 0.547$, $p < 0.001$) underscores the importance of fostering positive attitude to drive actionable behavioral changes. As mentioned by Watney et al. (2024), based on previous studies, it has shown that what humans learn affects what they do and how they do it, leading to human behavior change.

CHAPTER 6

CONCLUSION & RECOMMENDATION

This study highlights the complexities of knowledge, attitudes and practices towards horse vaccination among horse keepers. While the majority of respondents demonstrated a generally positive attitude toward vaccination and its importance in preventing disease, significant gaps in knowledge and inconsistencies in practices remain evident. Factors such as education level, reliable sources of information, and purpose of horse ownership are revealed as critical determinants of KAP outcomes. However, the difference between good attitudes and actual practices indicates issues that need to be addressed in order to achieve optimal vaccination compliance. The findings call for new strategies to enhance equine health management by improving education by providing educational campaigns and workshops and accessibility to veterinary services.

A way to address the identified gaps, targeted educational campaigns should be implemented to raise awareness about equine diseases, particularly lesser-known ones like Japanese Encephalitis and Equine Herpes Virus. These campaigns should emphasize the importance of vaccination and the compliance to vaccination schedules. Besides that, these campaigns could provide trusted platforms that horse keepers can easily refer to for any inquiries regarding horse health, management and vaccination. The government should work to improve access to vaccines and veterinary services through subsidies or mobile clinics, especially for those with financial or logistical constraints. Additionally, establishing mandatory vaccination protocols for horse events could encourage broader compliance. By overcoming these gaps, the general equine health in the state can significantly be improved.

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APPENDIX

Appendix 1: Questionnaire

<p>Knowledge, Attitude and Practice towards Vaccination in Horses among Horse Keepers in Kelantan</p> <p>Assalamualaikum dan salam sejahtera, nama saya Mysarah binti Ursilan Afandi, pelajar tahun 5 dari Fakulti Perubatan Veterinar (FPV), University Malaysia Kelantan (UMK).</p> <p>Tujuan saya menjalankan penyelidikan ini adalah untuk mengkaji pengetahuan, sikap dan amalan pemilik/penjaga kuda di Kelantan terhadap vaksinasi kuda. Sila jawab kesemua soalan secara jujur dan sila ambil maklum bahawa jawapan anda akan disimpan secara sulit.</p> <p>Ribuan terima kasih kerana meluangkan masa anda dengan mengambil bahagian dalam penyelidikan ini.</p> <p><i>Assalamualaikum and greetings, my name is Mysarah binti Ursilan Afandi, and I am a 4th year student from the Faculty of Veterinary Medicine (FPV), University Malaysia Kelantan (UMK).</i></p> <p><i>My purpose in conducting this research is to study the knowledge, attitudes and practices of horse owners/keepers in Kelantan towards horse vaccination. Please answer all questions honestly and please note that your answers will be kept confidential.</i></p> <p><i>Thank you so much for taking the time to participate in this research.</i></p> <p>* Indicates required question</p>	<p>1. Borang persetujuan soal selidik *</p> <p>1. Saya memberi kebenaran kepada penyelidik, Mysarah binti Ursilan Afandi untuk mengumpul jawapan saya dalam soal selidik bertajuk Knowledge, Attitude and Practice towards Vaccination in Horses among Horse Keepers in Kelantan.</p> <p>2. Saya faham bahawa penyelidikan ini adalah untuk tujuan akademik dan maklumat peribadi serta jawapan saya akan disimpan secara sulit.</p> <p>3. Saya bersetuju bahawa penyertaan saya dalam tinjauan ini dilakukan secara sukarela tanpa sebarang paksaan dari mana-mana pihak.</p> <p>4. Saya mengaku bahawa saya berumur 18 tahun ke atas.</p> <p>5. Saya juga mengaku bahawa saya menjaga kuda di Kelantan atau pernah memiliki sekurang-kurangnya 1 ekor kuda di Kelantan dalam tempoh 5 tahun yang lalu.</p> <p><i>Consent Form</i></p> <p>1. I give permission to the researcher, Mysarah binti Ursilan Afandi to collect my answers in a questionnaire titled Knowledge, Attitude and Practice confidentially.</p> <p>2. I understand that this research is for academic purposes and that my personal information and answers will be kept confidential.</p> <p>3. I agree that my participation in this survey is voluntary without any coercion from any party.</p> <p>4. I declare that I am 18 years old and above</p> <p>5. I also admit that I am taking care of horses in Kelantan or have had at least 1 horse in Kelantan in the past 5 years.</p> <p>Mark only one oval.</p> <p><input type="radio"/> Setuju/Agree</p> <p>2. Nama * Name</p> <p>_____</p>
<p>Bahagian A: Sosiodemografik penjaga atau pemilik kuda di Kelantan</p> <p>Section A: Horse Keeper's Sociodemographic</p> <p>3. Jantina * Gender</p> <p>Mark only one oval.</p> <p><input type="radio"/> Lelaki / Male</p> <p><input type="radio"/> Perempuan / Female</p> <p>4. Umur * Age</p> <p>Mark only one oval.</p> <p><input type="radio"/> 18 - 30</p> <p><input type="radio"/> 31 - 45</p> <p><input type="radio"/> > 45</p> <p>5. Peringkat Pendidikan Tertinggi * Highest Level of Education</p> <p>Mark only one oval.</p> <p><input type="radio"/> Tiada Pendidikan Formal / No Formal Education</p> <p><input type="radio"/> Sekolah Rendah / Primary</p> <p><input type="radio"/> Sekolah Menengah / Secondary</p> <p><input type="radio"/> Peringkat Pengajian Tinggi / Tertiary</p>	<p>6. Tahun menjaga atau memiliki kuda * Years of Horse Ownership</p> <p>Mark only one oval.</p> <p><input type="radio"/> < 1 Tahun / Years</p> <p><input type="radio"/> 1 - 5 Tahun / Years</p> <p><input type="radio"/> 6 - 10 Tahun / Years</p> <p><input type="radio"/> 11 - 15 Tahun / Years</p> <p><input type="radio"/> > 15 Tahun / Years</p> <p>7. Bilangan Kuda Dimiliki * Number of Horses Owned</p> <p>Mark only one oval.</p> <p><input type="radio"/> < 2</p> <p><input type="radio"/> 3 - 5</p> <p><input type="radio"/> 6 - 10</p> <p><input type="radio"/> > 11</p>

<p>8. Tujuan Kuda * <i>Purpose of Horses</i></p> <p>Mark only one oval.</p> <p><input type="radio"/> Hobi / Hobby</p> <p><input type="radio"/> Pembiakan / Breeding</p> <p><input type="radio"/> Lumba Kuda / Racing</p> <p><input type="radio"/> Lumba Kuda Lasak / Endurance</p> <p><input type="radio"/> Ekuestrian / Equestrian</p> <p><input type="radio"/> Polo</p> <p>9. Pengurusan kandang kuda * <i>Type of Housing Management</i></p> <p>Mark only one oval.</p> <p><input type="radio"/> Kandang individu / In individual stables</p> <p><input type="radio"/> Padang ragut rumput / In paddock</p> <p>10. Hubungan dengan Kuda * <i>Relationship of Horse</i></p> <p>Mark only one oval.</p> <p><input type="radio"/> Penjaga / Worker</p> <p><input type="radio"/> Pemilik / Owner</p> <p>11. Di manakah anda mendapat maklumat tentang pemvaksinan kuda? <i>Where did you obtain information about vaccination for horses?</i></p> <p>_____</p>	<p>Bahagian B: Pengetahuan terhadap Vaksinasi Kuda</p> <p>Section B: Knowledge Towards Vaccination in Horses</p> <p>12. Adakah anda tahu tentang jangkitan kancing gigi/tetanus pada kuda? * <i>Are you aware of the occurrence of tetanus in horses?</i></p> <p>Mark only one oval.</p> <p><input type="radio"/> Ya / Yes</p> <p><input type="radio"/> Tidak / No</p> <p>13. Adakah anda tahu tentang penyakit yang dipanggil Japanese Encephalitis (JE) pada kuda? * <i>Are you aware of a disease called Japanese Encephalitis (JE) in horses?</i></p> <p>Mark only one oval.</p> <p><input type="radio"/> Ya / Yes</p> <p><input type="radio"/> Tidak / No</p> <p>14. Adakah anda tahu tentang penyakit yang dipanggil flu kuda/Equine Influenza pada kuda? * <i>Are you aware of a disease called Equine Influenza in horses?</i></p> <p>Mark only one oval.</p> <p><input type="radio"/> Ya / Yes</p> <p><input type="radio"/> Tidak / No</p>
<p>15. Adakah anda tahu tentang penyakit yang dipanggil Equine Herpes Virus (EHV) pada kuda? * <i>Are you aware of a disease called Equine Herpes Virus (EHV) in horses?</i></p> <p>Mark only one oval.</p> <p><input type="radio"/> Ya / Yes</p> <p><input type="radio"/> Tidak / No</p> <p>16. Adakah anda tahu bahawa sesetengah penyakit mudah berjangkit dari seekor kuda kepada kuda yang lain? * <i>Do you know that some diseases can easily be transmitted from one horse to another?</i></p> <p>Mark only one oval.</p> <p><input type="radio"/> Ya / Yes</p> <p><input type="radio"/> Tidak / No</p> <p>17. Adakah anda sedar tentang kewujudan rutin pemvaksinan untuk kuda? * <i>Are you aware of the existence of routine vaccination for horses?</i></p> <p>Mark only one oval.</p> <p><input type="radio"/> Ya / Yes</p> <p><input type="radio"/> Tidak / No</p>	<p>18. Adakah anda tahu tentang pemvaksinan wajib kuda untuk menyertai pertandingan? * <i>Do you know about the mandatory vaccination of horses to participate in competitions?</i></p> <p>Mark only one oval.</p> <p><input type="radio"/> Ya / Yes</p> <p><input type="radio"/> Tidak / No</p> <p>19. Adakah anda tahu penyakit tertentu boleh dicegah melalui pemvaksinan kuda? * <i>Do you know certain diseases can be prevented through horse vaccination?</i></p> <p>Mark only one oval.</p> <p><input type="radio"/> Ya / Yes</p> <p><input type="radio"/> Tidak / No</p> <p>20. Adakah anda tahu tentang sebarang kesan sampingan yang mungkin berlaku selepas memberi vaksin kepada kuda? * <i>Do you know about any potential side effects that might occur after vaccinating a horse?</i></p> <p>Mark only one oval.</p> <p><input type="radio"/> Ya / Yes</p> <p><input type="radio"/> Tidak / No</p>

21. Jika Ya, sila tandakan kesan sampingan yang anda tahu di bawah.
If Yes, please tick any potential side effect(s) that you are aware of below.

Check all that apply.

Demam / Fever
 Kurang selera makan / Decreased appetite
 Bengkak / Swelling
 Lesu / Lethargy

Bahagian C: Sikap Terhadap Vaksinasi Kuda
 Section C: Attitude Towards Vaccination in Horses

Petunjuk / Indications
 1: Sangat Tidak Setuju / Strongly Disagree
 2: Tidak Setuju / Disagree
 3: Neutral
 4: Setuju / Agree
 5: Sangat Setuju / Strongly Agree

22. Saya percaya bahawa vaksinasi kuda adalah penting untuk menjaga kesihatan kuda *
I believe that vaccination in horses is important in order to keep them healthy

Mark only one oval.

1 2 3 4 5
 San Sangat Setuju / Strongly Agree

23. Saya percaya bahawa semua kuda wajib divaksasikan *
I believe it is compulsory for all horses to be vaccinated

Mark only one oval.

1 2 3 4 5
 San Sangat Setuju / Strongly Agree

24. Saya percaya banyak kes penyakit berjangkit dapat dielak dengan vaksinasi *
I believe many infected diseases cases can be prevented through vaccination

Mark only one oval.

1 2 3 4 5
 San Sangat Setuju / Strongly Agree

25. Saya setuju bahawa kuda yang tidak divaksin harus diasingkan dari kuda yang telah divaksin. *
I agree that unvaccinated horses should be kept away from vaccinated horses.

Mark only one oval.

1 2 3 4 5
 San Sangat Setuju / Strongly Agree

Bahagian D: Amalan Vaksinasi Kuda
 Section D: Practice Towards Vaccination in Horses

26. Adakah anda mengasingkan kuda yang sakit daripada kuda yang sihat? *
Do you isolate your sick horses from the healthy ones?

Mark only one oval.

Tidak Pernah / Never
 Kadang Kala / Sometimes
 Selalu / Often

27. Adakah anda membawa kuda anda yang sakit ke doktor veterinar? *
Do you take your sick horses to the vet?

Mark only one oval.

Tidak Pernah / Never
 Kadang Kala / Sometimes
 Selalu / Often

28. Adakah kuda anda pernah diberi vaksin? *
Have your horse been vaccinated before?

Mark only one oval.

Tidak Pernah / Never
 Kadang Kala / Sometimes
 Selalu / Often

29. Adakah anda patuh dengan jadual vaksinasi kuda anda? *
Do you comply to the vaccination schedule of your horse?

Mark only one oval.

Tidak Pernah / Never
 Kadang Kala / Sometimes
 Selalu / Often

30. Adakah anda menetapkan peringatan untuk jadual vaksinasi kuda anda? *
Do you set reminders for your horse vaccination schedule?

Mark only one oval.

Tidak Pernah / Never
 Kadang Kala / Sometimes
 Selalu / Often

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