Knowledge Attitude Practices

OF CAT OWNERS IN OPISTHORCHIASIS ENDEMIC AREAS

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About Me

Education
DVM, MBA (Management Information Systems)

Title
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Topic of interest
Applying data science techniques and GIS in Veterinary Epidemiology, especially *Opisthorchis viverrini*
  - Predictive modeling
  - Clustering
  - Risk factors association
• Introduction
• Materials and methods
• Results
• Conclusions
Foodborne trematodiases are caused by trematode worms ("flukes"): *Clonorchis sinensis, Opisthorchis viverrini, Opisthorchis felineus* (referred to collectively as small liver flukes), *Fasciola hepatica, Fasciola gigantica* and *Paragonimus spp.*

### Core strategic interventions

<table>
<thead>
<tr>
<th>Preventive chemotherapy</th>
<th>• Mass drug administration with triclabendazole (<em>Fasciola</em> spp.) and praziquantel (small liver flukes and <em>Paragonimus</em> spp.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>WASH</td>
<td>• Safe disposal of faecal waste</td>
</tr>
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<td></td>
<td>• Access to safe water</td>
</tr>
<tr>
<td>Vector control</td>
<td>N/A</td>
</tr>
<tr>
<td>Veterinary public health</td>
<td>• Treatment of livestock and other domestic animals</td>
</tr>
<tr>
<td>Case management</td>
<td>• Anthelmintic medicines (praziquantel, triclabendazole)</td>
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<tr>
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<td>• PAIR methods, surgery (including partial hepatectomy)</td>
</tr>
<tr>
<td>Other</td>
<td>• Safe food practices (preparation and storage, dietary change)</td>
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<td></td>
<td>• Multisectoral community health education on WASH (e.g. sanitation) and One Health interventions</td>
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<td>(e.g. treatment of pets, cooking of fish offal prior to feeding them to animals)</td>
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<tr>
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<td>• Good management practices in fish farming (safe sourcing, keeping animals away from fish ponds)</td>
</tr>
</tbody>
</table>
Introduction

2016-2025 strategic plan to fight liver fluke and Cholangiocarcinoma for 29 provinces in Thailand

The 9 operational measures are:
1. Screening for liver flukes in the age group of 15 years and over, totaling 4.1 million people.
2. Screening for bile duct cancer with ultrasound in the age group of 40 years and over for 5 million people.
3. Treating patients with bile duct cancer with 15,100 surgeries.
4. Caring for terminally ill cancer patients, providing support to 75,500 people.
5. Teaching students to adjust their behavior: not consuming raw food.
6. Managing the environment.
7. Modifying people's health behavior.
8. Academic development.
9. Developing an individual database.

- Need a additional strategic plan for veterinary and animal reservoirs
- Multidisciplinary approach
KAPs

Definition

Acquiring knowledge

Generating attitudes/belief

Forming practice/behaviors

Misconceptions or Misunderstandings

What is said ---- What is done

Human behavior change effectively
Disease prevention, control & rehabilitation

Wang et al., 2020
Objectives

1) To investigate OV-related KAPs among cat owners in an endemic area in Northeast and North Thailand

2) To implement a KAPs survey of cat owners with OV infection

3) To explore the gap between human and animal reservoirs host interventions
Materials and methods

Study areas

OV prevalence in human

Chi river
- 1 Khon Kaen 14.2%
- 2 Roi-et 16.8%

Songkram river
- 3 Nakhon Phanom 60.8%

Mun river
- 4 Ubon-Ratchathani 20.2%

Nan river
- 5 Phisanulok 17.0%

Phayao Lake
- 6 Phayao 13.5%

Namsanor et al., 2020
Sithithawornet al., 2012
Phitsanulok Provincial Health Office, 2014
Phayao Provincial Health Office, 2022
Materials and methods

Data collection

Sample collection
Cat owner interview
Ov egg examination

Positive household
Negative household
Materials and methods

KAPs survey

Knowledge 10 items
- Type and transmission
- Risky OV-associated behaviors
- Diagnosis, control, and prevention

Attitude 7 items
- Seriousness
- Risk and prevention of OV infection

Practices 10 items
- Food consumption
- Leftover management
- Animal health management
Results

Prevalence of cat by province

116 cats

- Ubon Ratchathani: 52.9%
- Nakhon Phanom: 41.7%
- Roi Et: 30.0%
- Khon Kaen: 24.5%
- Phayao: 0.0%
- Phitsanulok: 0.0%
# Results

## Respondents’ demographic characteristics

- **67 respondents**

<table>
<thead>
<tr>
<th>Category</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ov-positive household</td>
<td>30%</td>
</tr>
<tr>
<td>Ov-negative household</td>
<td>70%</td>
</tr>
<tr>
<td>Less than 40 years old</td>
<td>46%</td>
</tr>
<tr>
<td>40 - 60 years old</td>
<td>21%</td>
</tr>
<tr>
<td>More than 60 years old</td>
<td>33%</td>
</tr>
<tr>
<td>Male</td>
<td>27%</td>
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<tr>
<td>Female</td>
<td>73%</td>
</tr>
<tr>
<td>Fisherman</td>
<td>5%</td>
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<tr>
<td>Farmer</td>
<td>31%</td>
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<tr>
<td>Others</td>
<td>64%</td>
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<tr>
<td>Never examined Ov</td>
<td>39%</td>
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<tr>
<td>Examined Ov</td>
<td>61%</td>
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<tr>
<td>Never attended campaigns or received info</td>
<td>33%</td>
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<tr>
<td>Attended campaigns or received info</td>
<td>67%</td>
</tr>
</tbody>
</table>
Respondents’ level

Knowledge
- Anthelmintic drug: 84%
- Animal reservoir hosts: 11%, 39%

Attitude
- Worried if you get infected with liver flukes? 61%
- Risks of your pet getting OV: 66%

Practices
- Diagnostic pets for OV eggs annually: 97%
- After getting the positive result, deworming pets: 91%
- Giving PZQ to pets regularly: 86%
- Giving leftover risky food scraps: 84%
- Throwing raw fish food scraps for dogs and cats: 81%
- Seeking a veterinarian: 14%, 73%
Results

Level of KAPs

The mean difference between negative and positive households

Knowledge
Attitudes
Practices

P-value 0.192
0.647
0.127
Results

KAPs association

<table>
<thead>
<tr>
<th>Attitudes</th>
<th>Practices</th>
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</thead>
<tbody>
<tr>
<td>Knowledgeable</td>
<td>Non-Knowledgeable</td>
</tr>
<tr>
<td>90%</td>
<td>77%</td>
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<tr>
<td>51%</td>
<td>47%</td>
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</table>

P-value

- Attitudes: 0.200
- Practices: 0.148

Associations between knowledge and both attitudes and practices
# Results

## Univariate and multivariate analysis

<table>
<thead>
<tr>
<th>Predictors</th>
<th>Knowledgeable</th>
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<th>Good attitude</th>
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<th>Good practices</th>
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<td>p</td>
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<tr>
<td>&lt;40</td>
<td>0.73</td>
<td>1.25</td>
<td>0.44</td>
<td>1.80</td>
<td>0.62</td>
<td>0.72</td>
<td>0.55</td>
<td>0.65</td>
<td>0.79</td>
<td>0.84</td>
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<td>1.95</td>
<td>0.16</td>
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<td>Farmer</td>
<td>0.87</td>
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<td>9.94E+08</td>
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<td>0.76</td>
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<td>0.79</td>
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<td>0.75</td>
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<td>0.71</td>
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<tr>
<td>Attended OV campaign</td>
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<tr>
<td>Yes</td>
<td>0.41</td>
<td>1.57</td>
<td>0.46</td>
<td>1.56</td>
<td>0.66</td>
<td>1.26</td>
<td>0.92</td>
<td>1.06</td>
<td>0.18</td>
<td>2.13</td>
<td>0.14</td>
<td>2.52</td>
</tr>
</tbody>
</table>
## Results

Univariate and multivariate analysis

<table>
<thead>
<tr>
<th>Predictors</th>
<th>p</th>
<th>OR</th>
<th>95% C.I.</th>
<th>p</th>
<th>OR(adj.)</th>
<th>95% C.I.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Knowledge</td>
<td>0.24</td>
<td>0.86</td>
<td>0.66 - 1.11</td>
<td>0.07</td>
<td>0.73</td>
<td>0.52 - 1.03</td>
</tr>
<tr>
<td>Attitude</td>
<td>0.64</td>
<td>1.08</td>
<td>0.79 - 1.48</td>
<td>0.31</td>
<td>1.22</td>
<td>0.83 - 1.79</td>
</tr>
<tr>
<td>Practices</td>
<td>0.10</td>
<td>1.21</td>
<td>0.96 - 1.51</td>
<td>0.05</td>
<td>1.26</td>
<td>1.00 - 1.59</td>
</tr>
</tbody>
</table>
Conclusions

Area of improvement for human and animal interventions

- Human Behaviors and Aspects
- Food Waste Management
- Cats Health
- Prevention & Control in Cats
- Increasing practices in owners is protective against animal infection.

By improving knowledge and practices

Cat owners can help reduce the risk of liver fluke infection in their pets and the community.
ACKNOWLEDGEMENTS

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