Perceptions on the social risks to Malaria Infection: Field Experience in Endemic Malaria Communities in Palawan, Philippines

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Background and Context of the Study

• Defining the Biomedical, Environmental and Social risk factors for human infection with *Plasmodium knowlesi*; opportunities for prevention and control of an emerging zoonotic infection.

• Components of the Project
  – Primatology
  – Entomology
  – Social science
Malaria in the Philippine context

• The Philippines, being a tropical country, is also endemic to malaria. The disease once ranked as one of the leading causes of morbidity in the country but for the period of 2005 to 2013, the number of cases and deaths caused by malaria went down by 83% and 92%, respectively (Philippine Department of Health [DOH], 2014).
Reported Malaria cases in Palawan, Philippines

- 2006-2008: 11 confirmed cases
- April 2013: 7 of the 11 cases were located in 4 barangays in Puerto Princesa, Palawan

<table>
<thead>
<tr>
<th>Barangay</th>
<th>Number of malaria cases</th>
</tr>
</thead>
<tbody>
<tr>
<td>Langogan (Liwayway; Pagkakaisa)</td>
<td>2</td>
</tr>
<tr>
<td>Bacungan (Candis III, Maranat III)</td>
<td>3</td>
</tr>
<tr>
<td>Penal Colony in Iwahig</td>
<td>1</td>
</tr>
<tr>
<td>Zone 2 Sampaloc, Irawan</td>
<td>1</td>
</tr>
<tr>
<td>total</td>
<td>7</td>
</tr>
</tbody>
</table>
New cases

• 2014 3,615 cases for the entire country
• 2014 Palawan 1253
• 2015 Palawan 2581
  • Source: Provincial Health office, Palawan, 2015
Malaria Cases in Palawan 2015 vs 5-Yr Epidemic Threshold
Objective of the Social Science Component

- To identify the social risk factors for symptomatic *P. Knowlesi* infection and exposure
- To learn about the community’s livelihood patterns and perception about febrile illnesses, malaria, treatment seeking patterns
Research Questions

• What are the social risks perception on malaria infection of endemic communities in Palawan?
The study sites Candis I, II and II in Barangay Bacungan, Puerto Princesa, Palawan, Philippines
Method and Data

• Ten men participated in 7 sessions of photovoice cum focus groups.
• Visual data was gathered from the photographs they have taken which they described in detail the following topics:
  – where they can get ill or malaria,
  – what is malaria,
  – when can they get sick of malaria and
  – how do they treat their illnesses or malaria

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Method and Data

• Photovoice is a community–based participatory research (CBPR) methodology that has been originally developed by Wang and Burris in 1994). It is participatory in the sense that photovoice affords participants potential involvement in all aspects of the research process by allowing participants to personally document, record, and reflect through small group discussion of photographs that the participants have taken.
Methods

Photovoice used in this study combines the merits of interview and group discussion from focus groups.

- The discussion on the topic centers on the photos that the participants themselves have taken and the process of selection includes their values...
Method and Data

Pilot study
Barangay Luzviminda
September to December 2013

PV and FG Study sites
3
May 4, 2014 to August 2014
Why study perception of people?

- Perceptions are studied because they are strong predictors of human behavior.
- The source of perception are mainly experiential accumulated through time in a specific social, cultural and environmental context.
• These views and experiences are important as they can provide rich information that can help to identify new tools and strategies for controlling the spread of the disease that is acceptable to the community.
## Characteristics of the Participants

<table>
<thead>
<tr>
<th>Codename</th>
<th>Age</th>
<th>Civil Status</th>
<th>Purok</th>
<th>Main Livelihood</th>
<th>Strain of Malaria Parasite</th>
<th>Year Acquired</th>
<th>Area</th>
<th>Group</th>
</tr>
</thead>
<tbody>
<tr>
<td>AA</td>
<td>57</td>
<td>Married</td>
<td>Candis 2</td>
<td>Sawali Maker</td>
<td>P. Falciparum</td>
<td>1989</td>
<td>Bacungan</td>
<td></td>
</tr>
<tr>
<td>RM</td>
<td>35</td>
<td>Married</td>
<td>Candis 2</td>
<td>Laborer (Kano)</td>
<td>P. Falciparum</td>
<td>1997</td>
<td>Bacungan</td>
<td>A</td>
</tr>
<tr>
<td>RP</td>
<td>32</td>
<td>Single</td>
<td>Candis 2</td>
<td>Farmer</td>
<td>P. Falciparum</td>
<td>1995</td>
<td>Bacungan</td>
<td></td>
</tr>
<tr>
<td>JR</td>
<td>35</td>
<td>Married</td>
<td>Candis 3</td>
<td>Tricycle Driver</td>
<td>P. Falciparum</td>
<td>1994</td>
<td>Bacungan</td>
<td></td>
</tr>
<tr>
<td>MZ</td>
<td>49</td>
<td>Single</td>
<td>Candis 1</td>
<td>Sawali Maker</td>
<td>P. Falciparum</td>
<td>every year</td>
<td>Bacungan</td>
<td></td>
</tr>
<tr>
<td>NB</td>
<td>35</td>
<td>Married</td>
<td>Candis 3</td>
<td>Farmer (ex-soldier)</td>
<td>P. Falciparum</td>
<td>2002</td>
<td>Zamboanga</td>
<td></td>
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<tr>
<td>RC</td>
<td>36</td>
<td>Married</td>
<td>Candis 2</td>
<td>Security Guard</td>
<td>P. Falciparum</td>
<td>2010</td>
<td>Bacungan</td>
<td>B</td>
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<tr>
<td>EL</td>
<td>43</td>
<td>Married</td>
<td>Candis 2</td>
<td>Farmer</td>
<td>P. Vivax</td>
<td>1996</td>
<td>Nagtabon</td>
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<tr>
<td>AM</td>
<td>27</td>
<td>Married</td>
<td>Candis 3</td>
<td>Farmer</td>
<td>P. Falciparum</td>
<td>2014</td>
<td>Bacungan</td>
<td></td>
</tr>
<tr>
<td>NP</td>
<td>32</td>
<td>Married</td>
<td>Candis 1</td>
<td>Vendor</td>
<td>P. Falciparum</td>
<td>2010</td>
<td>Bacungan</td>
<td></td>
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</table>
# Characteristics of the Photovoice participants

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Group A</th>
<th>Group B</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>mean</td>
<td>41.6</td>
<td>32.8</td>
<td>37.2</td>
</tr>
<tr>
<td>median</td>
<td>35</td>
<td>32</td>
<td>35</td>
</tr>
<tr>
<td>Livelihood*</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sawali – maker (bamboo material used for walling bamboo huts)</td>
<td>2</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>Caretaker/security guard</td>
<td>0</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Farmer</td>
<td>2</td>
<td>3</td>
<td>5</td>
</tr>
<tr>
<td>vendor</td>
<td>0</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Tricycle driver</td>
<td>1</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Hired farm worker</td>
<td>3</td>
<td>2</td>
<td>5</td>
</tr>
<tr>
<td>Residential characteristics</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Settlement</td>
<td>2</td>
<td>4</td>
<td>6</td>
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<tr>
<td>Grassland</td>
<td>2</td>
<td>0</td>
<td>2</td>
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<tr>
<td>Forest fringe</td>
<td>1</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Work Area*</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Settlement areas</td>
<td>1</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>farmland</td>
<td>2</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>Replanted areas</td>
<td>0</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Forest Fringe</td>
<td>4</td>
<td>2</td>
<td>6</td>
</tr>
<tr>
<td>Secondary forest</td>
<td>0</td>
<td>2</td>
<td>2</td>
</tr>
</tbody>
</table>
Characteristics of the Photovoice participants

- Marginalized group in a Vulnerable community:
- Majority were engaged in subsistence farming
- All males and are between 27 to 57 years old
- The males are quite an important subsample since, 26 out of the 28 malaria cases recorded since 2006 were males. They have been residing in the area for a minimum of 5 years at the time of the study. Eight out of the 10 are married and 2 are single.
Core Photovoice questions

• What is the picture about?
• Where was it taken?
• Why did you take the picture?
• How will you relate the picture to the ___ (assigned topic)
Core Questions on Photovoice session on Zoonotic diseases

• What picture/s you think represent(s) zoonotic diseases?
• When do you think does a person acquire malaria?
• When you had malaria, what was your environment like?
• What picture/s you think represent zoonotic diseases?
• When do you think does a person acquire malaria?
Core questions continue

- When you had malaria, what was your environment like?
- What picture/s you think represent zoonotic diseases?
- When do you think does a person acquire malaria?
- When you had malaria, what was your environment like?
- What picture/s represent zoonotic diseases?
Ice breaker: Pinoy Henyo (modified charade game)
Participants narrating the stories behind the pictures they have taken
Venue for the FG and photovoice sessions.
Results: *The prevention, symptoms, causes and treatment of malaria and other illnesses*

Prevention of sickness is portrayed as being healthy and maintaining clean environment.

Healthy means eating fruits and vegetables and using bed nets when sleeping while unhealthy habits include drinking and smoking.

Unhealthy surroundings for them means stagnant water, and drinking contaminated water.
• Symptoms of illnesses is generally described as having chills for 20 to 30 minutes which they described as *minamalarya*, a term used in general to describe all sorts of illness not necessarily malaria.

• Their health seeking behaviors include getting tested with barangay health workers for RDT, doctor consultation, and self-treatment by taking over-the-counter medicines to abate fever.
What is Healthy and Unhealthy?
Uncovered trash bins
Stagnant water
Unhealthy things and Places
old tires on the roof and playing with dirt
Perception on Zoonotic Diseases

What is zoonotic disease?

- Stagnant water: 50%
- Dogs: 25%
- Mosquitoes: 12%
- Other: 13%

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“Tiger” mosquitoes
Driving away mosquitoes by burning dried leaves and plant wastes
Symptoms of malaria
lack of appetite and headache
Perception on the symptoms of illness and malaria

![Bar chart showing the perception of symptoms of illness and malaria. The chart compares biomedical and natural perceptions for various symptoms, such as joint aches (A), chills (B), dizziness (C), fever (D), headache (E), loss of appetite (F), restlessness (G), paleness (H), and stomachache (I).]
Participants the photovoice: Candis 1, 2, and 3 do not consider themselves at risk of acquiring malaria.

Their past experience with the disease has enabled them to detect the symptoms early.

Their health seeking behaviors include getting tested with barangay health workers for RDT, doctor consultation, and self-treatment by taking over-the-counter medicines to abate fever.

Faith in God
Treatment seeking behavior over the counter medicine eating fruits rich with vit C and praying
Rapid Diagnostic Site
Social Risk factors

• Work as farmers near the forest fringe
• Hobbies are hunting and fishing
• Work hours are between 6:00 to 10:00 a.m.
• Seemingly no gender difference
• Age: Between 13-15 years old source of infection is recreation related while the middle age group source of infection is work related;
• Reported monkeys sightings in the place of work
Experiences and Lessons Learned

- pictures feature everyday life and activities
- no session was dull and boring since for every picture lies a very interesting story.
- the pictures are in themselves “conversation pieces”
- Filipinos especially in semi-illiterate population, the visual mode rendered by the pictures contributed to group sharing of opinions and beliefs that mirrored the values and norms of the participants and that of the community where they belong.

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Experiences and Lessons Learned

• Pictures can serve as “memory triggers”, aiding in the recall of past experiences, stimulate discussion and calls to action when exhibited to non-participant members of the community.

• The formal presentations of the photos taken by the participants in the study was an opportunity to reflect and to engage policy makers in dialogues about their photos which enable the participants to voice their perceptions and probably are the solutions to finally eliminate malaria in the province of Palawan.
Implications to the present research project

• Improve data collection using various mixed methods
• Malaria infection is work and recreational related
• Vulnerable groups: school children, middle age men and women
• Forest fringe and beach areas are identified to be the places at risk for acquiring malaria infection
Implications to the present research project

• Few malaria cases in Palawan, Philippines
• Emerging zoonotic disease
  – Well-trained microscopist
  – Use of Bed nets (treated and untreated)
  – Burning dried leaves to drive mosquitoes away
  – Precautionary habits. i.e using mosquito repellent lotion
  – strong family support and loving care of family members.
Implications to the present research project on *P. knowlesi*

- Emerging zoonotic disease
- May likely be linked to the changing environmental and ecosystem or
- Changing land use patterns
- Over-all change in lifestyle of the people in Palawan
Effectiveness of photovoice and focus groups in eliciting perceptions

• The participants collected rich data per topic in all the seven sessions.

• Gallery of perceptions in pictures on malaria and illnesses.

• Participants fail to distinguish between malaria and other illnesses.

• The genera term used “minamalarya”

• They know however that the Rapid Diagnostic Test (RDT) that the barangay health workers are for detecting the presence of malaria.

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Effectiveness of photovoice and focus groups in eliciting perceptions

• Photovoice thus serve as a powerful instrument in eliciting perception since it basically assume that the photos that the participants have taken are of interest to him and may find that the photos have commonality with other photos taken by other participants.

• The photos taken by the participants is therefore an actual representation of the perceptions of the community
• Finally, photovoice is a paradigm (a combination of knowledge, beliefs, and perception) of participants on illness and malaria. This study illustrates Filipino perception on illness and malaria. It further demonstrated that social risk factors related to malaria is socially constructed by the processes and interactions of persons with other members in his own group who share a common physical environment described to be an endemic malaria community.
Most frequent words from the stories
Thank you for listening!