Whose Validity Counts?
Participatory Methods for Veterinary Research in Southern Sudan

In the mid 1990s, very few veterinary researchers in Africa were using participatory methods. Researchers in veterinary schools and national research centers tended to dismiss these methods as qualitative and lacking the rigor of conventional, quantitative methods. There were fears that participatory methods did not produce numerical data and, therefore, researchers would be unable to produce scientific papers as required by the 'publish or perish' incentives of research institutions. In other words, scientists were rewarded for publishing papers, not for improving the lives of livestock-keeping communities.

This paper presents a case study on paticipatory disease identification in Thiet, southern Sudan, through a project called Participatory Approaches to Veterinary Epidemiology (PAVE).

The PAVE project aimed to address veterinarians' concerns about participatory methods through a research assessing the reliability and validity of these methods. The project was implemented by the International Institute for Environment and Development, in partnership with the African Union's Inter-African Bureau for Animal Resources (AU/IBAR). The key aspects of research are summarized here.

Key Aspects of the PAVE Project

- Studies on livestock diseases in pastoralist areas involving comparison of data derived from participatory methods with data derived from conventional veterinary investigation and epidemiological methods
- Flexibility to respond to disease problems as requested by communities and articulated via NGOs
- Repetition of similar methods in communities who differed in terms of their ethnicity, language and geographical location
- Development and use of participatory methods comprising a standardized component to produce numerical data for statistical analysis, and an open-ended, flexible component to respond to interesting issues and questions as they arose
- A strategy of immediate dissemination of research findings to local stakeholders as informal reports plus production of peer-reviewed papers in well respected veterinary journals

An Example from Sudan: Is Matrix Scoring of Disease-Signs and Disease-Causes Reliable and Valid?

In southern Sudan, Dinka communities were complaining about a chronic wasting disease in cattle which the local folks called *liei*. Veterinarians interpreted *liei* in different ways. Some veterinarians diagnosed the problem as trypanosomiasis whereas others thought *liei* was liver fluke disease. The problem was compounded by the lack of laboratory facilities to conduct tests that would diagnose the disease.

A correct diagnosis of *liei* was important because the medicines used to treat trypanosomiasis are different from those of liver flukes disease. In addition, most of the treatments were done by community-based animal health workers on a cost-recovery basis and it was important that the training course for these workers included accurate information on the diagnosis and treatment of diseases like *liei*.

How did Dinka livestock herders characterize *liei*? A simple method of identifying symptoms and possible causes of *liei* at the local level was introduced.

Matrix scoring was used for this purpose. Lines were drawn on the bare soil to form a matrix of rows and columns. In the first matrix, each of the five columns was assigned to a cattle disease common to the villagers. Each row represented specific disease signs and symptoms. Selected Dinka villagers were then asked to put stones on the box if they thought that the disease showed this particular sign/symptom. This act of pairing a disease with a sign/symptom is referred to as pair-wise comparison.

A second matrix was then presented where the five diseases were to be matched with what the villagers perceived as the causes or symptoms of that particular disease. Seven groups of villagers or informants were asked to participate in the matrix scoring.

Based on the physical and statistical results of this pair-wise comparison, the clinical signs of *liei* were: chronic weight loss, diarrhea, loss of tail hair and watery eyes. The disease was also associated with wet grass, flooding, biting flies called *rom* (scientific name: Tabanids) and snails.

There was significant agreement among the informant groups, indicating that the matrix scoring method was reliable…but was it valid? To a veterinarian, the results of the matrix scoring indicated that *liei* was either trypanosomiasis, liver fluke disease or a combination of these two diseases.

To test the Dinka herders' perceptions of the cause of *liei*, 13 affected cattle were purchased and examined by a veterinarian. The cattle were then slaughtered and full post mortem examinations were done with the presence of the cattle owners. If parasites or abnormalities were detected, the owners were probed about their understanding of *liei*.

The result of the post-mortem examination showed:

- 8 out of 12 cases showed evidence of mixed infection of trypanosomes and liver flukes;
- 2 cases showed trypanosomiasis alone; and
- 2 cases showed liver flukes alone.

These findings effectively validated the herder's perceptions of *liei* as a syndrome involving mixed and single infections. Furthermore, although the veterinarians tended to view *liei* as either trypanosomiasis or liver fluke disease, it confirmed the herders' perceptions of multiple causes of the disease (Catley, *et al.*, 2001).

Assessing Reliability and Measuring Validity

The reliability of a method can be assessed by asking the question: Does the method produce similar results when the method is repeated? In PAVE, reliability was measured by looking at the level of agreement between informants when they were asked to describe the signs and causes of livestock diseases.

The validity of a method, on the other hand, can be measured by asking the question: Does the method produce results that agree with reality? It was assumed that modern or conventional methods produced valid results.

The information gathered from this case study was combined with results from other areas of southern Sudan. This led to the revision of training courses for community-based animal health workers.

Other Studies and Outcomes of the PAVE Project

- In addition to the study in southern Sudan, the PAVE Project also conducted research in two other countries. In Kenya, participatory methods were used with Orma communities to explore local perceptions of bovine trypansomiasis (Catley *et al.*, 2002). While in Tanzania, similar methods were used to investigate a possible association between a heat intolerance syndrome in cattle, and foot and mouth disease.
- As the PAVE Project was coming to an end, a new program was being developed by AU/IBAR called the Pan African Program for the Control of Epizootics (PACE). In part, the objectives of PACE were related to the Sanitary and Phytosanitary Agreement of the World Trade Organization, and the potential for African countries to export livestock. Such export was related to national disease surveillance systems.
- The validation of participatory methods by the PAVE project provided PACE with a new set of tools to complement conventional veterinary epidemiological methods. Training in participatory approaches and methods was incorporated into the PACE program for countries in the Horn of Africa region, and this training focused on senior-level veterinary epidemiologists in government veterinary services, veterinary schools and research institutes.
- Various government services and research centers have undergone training in 'participatory epidemiology' and have been applying the methods in the field. With the relative success gained from the use of participatory approach, these institutions now face a challenge: to feedback timely information to livestock rearing communities and not use participatory methods simply for the purpose of data collection.

References

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