



Intention of dog owners to participate in rabies control measures in Flores Island, Indonesia



Ewaldus Wera^{a,b,*}, Monique C.M. Mourits^b, Henk Hogeveen^b

^a Animal Health Study Program, Kupang State Agricultural Polytechnic (Politeknik Pertanian Negeri Kupang), Jl. Adisucipto-Penfui Kupang, 85011 West Timor, Indonesia

^b Business Economics Group, Wageningen University, Hollandseweg 1, 6706 KN Wageningen, The Netherlands

ARTICLE INFO

Article history:

Received 29 April 2015

Received in revised form 13 January 2016

Accepted 30 January 2016

Keywords:

Control measures

Dog owners

Intention

Rabies

Flores Island

ABSTRACT

The success of a rabies control strategy depends on the commitment and collaboration of dog owners. In this study the theory of planned behaviour (TPB) was used to identify the factors, which are associated with the intention of dog owners to participate in rabies control measures in the Manggarai and Sikka regencies of Flores Island, Indonesia. Questionnaires were administered to 450 dog owners from 44 randomly selected villages in the two regencies. Ninety-six percent of the dog owners intended to participate in a free-of-charge vaccination campaign. The intention decreased to 24% when dog owners were asked to pay a vaccination fee equal to the market price of the vaccine (Rp 18.000 per dose = US\$2). Approximately 81% of the dog owners intended to keep their dogs inside their house or to leash them day and night during a period of at least three months in case of an incidence of rabies in the dog population within their village. Only 40% intended to cull their dogs in case of a rabies incident within their village. Using multivariable logistic regression analysis, the attitude item 'vaccinating dogs reduces rabies cases in humans', and the perceived behavioural control items 'availability of time' and 'ability to confine dogs' were shown to be significantly associated with the intention to participate in a free-of-charge vaccination campaign. The attitude item 'culling dogs reduces rabies cases in humans' was significantly associated with the intention to participate in a culling measure. The attitude item 'leashing of dogs reduces human rabies cases' and perceived behavioural controls 'availability of time' and 'money to buy a leash' were associated with the intention to leash dogs during a rabies outbreak. As the attitude variables were often significantly associated with intention to participate in a rabies control measure, an educational rabies campaign focusing on the benefit of rabies control measures is expected to increase the intention of dog owners to participate in future rabies control measures. The significant association between perceived behavioural controls and intention to participate points to other relevant policy interventions. Providing dog owners with a skill to confine dogs and creating a subsidy program for the vaccine and leash costs, by involving non-governmental organisations or charitable organisations, may be useful policy interventions. Moreover appropriate time management, such as implementing vaccination campaigns during the weekend, could increase the intention to participate in vaccination campaigns, by relaxing the constraints on the availability of dog owners' time.

© 2016 Elsevier B.V. All rights reserved.

1. Introduction

Rabies is a viral disease that can cause encephalomyelitis in both animals and humans (Wunner, 2007). Rabies has a case fatality rate of almost 100%, the highest of any infectious human disease (WHO, 2013). Rabies is recently estimated as causing 59,000 human death

cases worldwide (Hampson et al., 2015). Most of these cases occur in Asian and African countries (Hampson et al., 2015). In these countries, domestic dogs are the main transmitters of the rabies virus to humans (Nicholson, 1990; Knobel et al., 2013). Rabies control measures targeted at the dog population could, therefore, be effective in preventing rabies infections in both dogs and humans. Control measures targeted at the dog population have been recommended by the World Health Organisation (WHO) (WHO, 2013) and World Organisation for Animal Health (OIE) (Vallat, 2011). These measures include mass vaccination of dogs, euthanasia of infectious dogs

* Corresponding author at: Business Economics Group, Wageningen University, Hollandseweg 1, 6706 KN Wageningen, The Netherlands. Fax: +31 317482745.
E-mail addresses: ewaldus.wera@wur.nl, nanawaldi@yahoo.com (E. Wera).

and dog management actions, such as birth control and leashing or keeping dogs inside the house area.

Rabies has been endemic in Flores Island since its introduction in 1997. There is no integrated island-wide vaccination campaign (e.g. the timing of the mass vaccination campaigns is not uniform throughout Flores) due to a lack of financial resources between regencies. Each of the 8 regencies within Flores Island has implemented its own policy for eliminating rabies. For instance, East Flores, Sikka and Ngada regencies implemented mass culling of dogs during previous outbreaks of rabies, whereas Ende and Manggarai regencies focused on mass vaccination of dogs.

The mass culling measures on Flores Island resulted in the death of over 280,000 dogs between 1997 and October 2000 (Bingham, 2001). Many of these dogs were not infected. As a result of increased public concern about the killing of healthy dogs, mass culling has been banned as a measure in current control. Since 2001, all regencies in Flores Island have implemented a rabies control strategy, which consists of annual mass vaccination of dogs, culling of roaming dogs that are aggressive and tend to bite people, quarantine of dogs imported from outside the island, investigation of dog bites, diagnostic testing of suspected rabid dogs, tracing of human contacts with rabid dogs, and post-exposure treatment (a series of vaccine injections after exposure) for humans bitten by suspected rabid dogs. These control measures are in line with the national recommendations for rabies control in Indonesia (IAM, 1997; IHM, 2000).

The success of a rabies control strategy depends on the commitment and collaboration of the stakeholders involved (Lapiz et al., 2012; Putra et al., 2013). Stakeholders include animal health and public health authorities, non-governmental organisations and the local community, especially dog owners. In Flores Island, efforts to increase the uptake of the annual dog vaccination campaign have been made by providing vaccination free-of-charge and by applying a 'house-to-house' vaccination approach. However, the realised vaccination coverage (53%) is still lower than the 70%, which is recommended by the WHO (Wera et al., 2013). Studies conducted in countries where rabies is endemic have identified dog's age (i.e. dogs younger than 12 months are less likely to be vaccinated) and employment status of dog owners (i.e. dog owners employed are more likely to vaccinate their dogs) as significant factors influencing vaccination coverage (Flores-Ibarra and Estrella-Valenzuela, 2004; Kongkaew et al., 2004; Suzuki et al., 2008; Davlin et al., 2012). Studies in endemic areas have shown that lack of information about the vaccination schedule, lack of financial resources to pay the vaccination fee and difficulty to catch dogs are the most important reasons for dog owners not to join a vaccination campaign (Robinson et al., 1996; Matter et al., 2000; Kayali et al., 2003; Durr et al., 2009; Bardosh et al., 2014; Wera et al., 2015). However, all of these studies were primarily aimed at assessing the socio-demographic risk factors related to the uptake of rabies vaccination by dog owners. The decision to adopt a rabies control measure cannot be explained by socio-demographic factors alone, as socio-psychological factors also influence the uptake of a certain behaviour (Ajzen, 1991). As the intention 'to adopt' is the best predictor of actual behaviour (Ajzen, 1991), more insight is needed in the psychological factors of dog owners that influence the intention to participate in rabies control measures.

The theory of planned behaviour (TPB) (Ajzen, 1991) is a framework that is widely used to obtain insight in the psychological factors that influence intentions. There are several applications of the TPB in veterinary science. For example, Bruijnijis et al. (2013) used the TPB as a theoretical framework to explain dairy farmers' intention to improve dairy cow foot health; Delgado et al. (2012) applied the TPB to study cattle producers' intention to participate in foot-and-mouth disease detection and control; and Lind et al. (2012) used it to study farmers' intention regarding the treatment

of mild clinical mastitis. To our knowledge, only Thomas et al. (2013) have used the TPB as a theoretical framework to explore the social-psychological factors influencing the intention of dog owners with regard to rabies control. This study showed that almost all dog owners in Grenada, West Indies, had the intention to vaccinate their dogs as they believed that vaccination was an effective way to protect their dogs from rabies. However, this study only considered the dog owners' intention to participate in a free-of-charge vaccination campaign. For developing countries with limited financial resources, insight is also needed in other rabies control measures, such as charged vaccination, culling of dogs in infected villages and confining dogs during the outbreak. These insights are needed to support the development of future policies to reduce human rabies cases.

The first objective of this study was to use the TPB as a theoretical framework to determine the intention of dog owners in Flores Island to participate in different rabies control measures and identify their attitudes, subjective norms and perceived behavioural controls in relation to these measures. The second objective was to estimate the influence of these psychological factors on the intention of dog owners to participate in different rabies control measures.

2. Materials and methods

2.1. Theoretical framework

In this study, the evaluation of psychological factors influencing the intention to participate in rabies control measures was based on the TPB as proposed by Ajzen (1991). According to the TPB, the intention to perform a behaviour is determined by three conceptually independent psychological factors: (1) attitude, (2) subjective norm, and (3) perceived behavioural control (Ajzen, 1991) (Fig. 1).

In our study, *attitude* is defined as the perception of dog owners about three aspects: the risk of rabies, the possibility of transmission from dogs to humans, and the benefit of control measures in reducing human rabies cases. A positive attitude indicates for instance that dog owners believe that a particular control measure is beneficial in reducing human rabies cases; this positive attitude may be a reason to participate in the rabies control measure.

Subjective norm reflects the perception of dog owners about social pressure or social opinion to adopt a certain rabies control measure. The opinions of family members, neighbours, animal and public health authorities, and local community could influence the decision of the dog owner to participate in a certain rabies control measure.

Perceived behavioural control concerns the dog owners' beliefs about their resources and ability to perform a certain rabies control measure, such as time, money, and ability to catch and restrain dogs. The beliefs of dog owners about their resources could influence their intention to participate in a rabies control measure.

2.2. Rabies control measures

In the present study the intention of dog owners is explored towards the following control measures: (1) free-of-charge vaccination, (2) charged vaccination, (3) culling of dogs in case of an incidence of rabies in the dog population within the village (termed 'culling' in this paper), and (4) permanently leashing of dogs or keeping them inside for at least three months in case of an incidence of rabies in the dog population within the village (termed 'leashing' in this paper).

The 'free-of-charge vaccination' measure represents the main rabies control measure as currently applied in Flores Island, in which the direct costs related to the vaccination campaigns are

Download English Version:

<https://daneshyari.com/en/article/5792961>

Download Persian Version:

<https://daneshyari.com/article/5792961>

[Daneshyari.com](https://daneshyari.com)