



# Social Influence in Liver Fluke Transmission: Application of Social Network Analysis of Food Sharing in Thai Isaan Culture

Waraphon Phimprapai<sup>\*1</sup>, Sirikachorn Tangkawattana<sup>§,||</sup>,  
Suwicha Kasemsuwan<sup>\*</sup> and Banchob Sripa<sup>¶,||</sup>

<sup>\*</sup>Department of Veterinary Public Health, Faculty of Veterinary Medicine, Kasetsart University, Bangkok, Thailand

<sup>§</sup>Department of Veterinary Pathobiology, Faculty of Veterinary Medicine, Khon Kaen University, Khon Kaen, Thailand

<sup>¶</sup>Department of Pathology, Faculty of Medicine, Khon Kaen University, Khon Kaen, Thailand

<sup>||</sup>WHO Collaborating Centre for Research and Control of Opisthorchiasis (Southeast Asian Liver Fluke Disease)/Tropical Disease Research Center (TDRC), Department of Pathology, Faculty of Medicine, Khon Kaen University, Khon Kaen, Thailand

<sup>1</sup>Corresponding author: E-mail: fvetwrp@ku.ac.th

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## Abstract

In northeastern Thai (Isaan) culture traditional raw fish dishes and raw fish-eating habits are common. Eating and sharing meals together among the community's members, especially relatives and neighbours, are a common practice in both daily life and social gathering events. Fish are a significant protein source and are associated with variety of traditional recipes. Cyprinid fish are one of the most preferred fish by Isaan villagers for daily consumption because they are accessible and affordable. Consumption of these fish probably causes the persistence of high endemicity of human liver fluke infection, particularly with *Opisthorchis viverrini*, in northeast Thailand. Because the consumption of raw cyprinid fish is a well-documented risk factor for liver fluke infection, sharing of risky raw fish dishes may influence disease transmission through a community. Social network analysis was used to investigate fish and fish-based meal sharing among household members in Isaan villages in liver fluke endemic areas. The findings from three studies confirmed the persistence of traditional Isaan raw fish consumption and food-sharing practice. Social connections via food sharing among villagers played an important role in liver fluke infection and transmission dynamics as a risk factor. Thus these sociocultural factors should be taken into account in designing strategies for control of opisthorchiasis and other food-borne illnesses at the community level.



## 1. INTRODUCTION

Human liver flukes are food-borne trematodes that remain a significant public health problem in various parts of Southeast Asia, especially in the Lower Mekong Basin (Sripa et al., 2010; Sithithaworn et al., 2012). Liver fluke infection is acquired by eating raw fish, a behaviour related to traditional fish recipes. In northeast Thailand (Isaan) where *Opisthorchis viverrini* is endemic, intensive and continuous liver fluke control programs have been carried out as public health service activities. These strategies have coincided with lifestyle transitions that changes the communities from traditional agricultural life to modern urban industrial life, which potentially resulted in a decrease of liver fluke prevalence (Jongsuksuntigul and Imsomboon, 2003). However, prevalence data still indicate high *O. viverrini* infection rates of up to 50% in certain Isaan provinces, where infection has tended to persist in highly endemic areas (Sithithaworn et al., 2012).