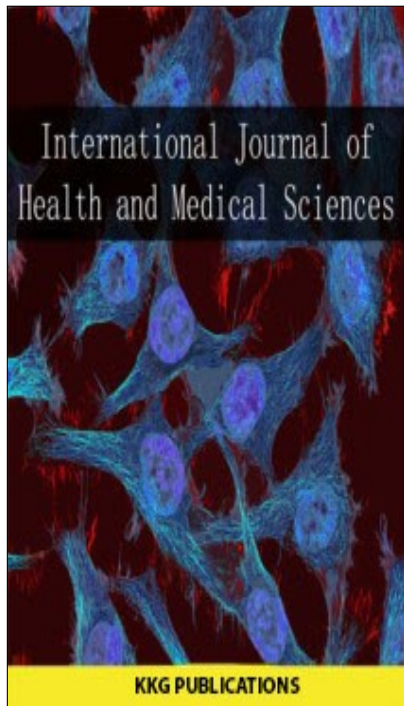


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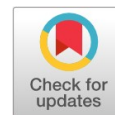
A Qualitative Investigation of the Health Belief in Human Rabies Post Exposure Prophylaxis

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A QUALITATIVE INVESTIGATION OF THE HEALTH BELIEF IN HUMAN RABIES POST EXPOSURE PROPHYLAXIS

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Abstract. Rabies is a zoonotic disease that causes encephalitis in humans and dies suddenly. Although Thailand has vaccination for rabies post-exposure treatment, there are still reports of human death. The purpose of the study was to investigate the perception of the health belief about human rabies post-exposure prophylaxis discontinued. The participants were 12 humans in Chiang Mai province, Thailand, who received a vaccination program that discontinued rabies post-exposure in the past year. This qualitative research regarded the interpretative paradigm. The research instruments include audiotape and face-to-face in-depth interviews. The semi-structured interview includes perceived susceptibility, perceived severity, perceived benefit, perceived barrier, self-efficacy, and modifying factor transcribed and analyzed using content analysis. It was concluded that the participant was not cover in perception susceptibility there are not follow the World Health Organization standard. In some cases, there was no opportunity to receive a vaccine after wound healing. That showed most participants' perceived severity of small wounds and not present exudation from the wound they are not receiving vaccination continued in hospital and, or receive vaccine late because not understands the participant's perceived benefit. The participant's perception barrier prevention remembered the first treatment not impressed and afraid for receiving vaccination continued. The health motivation, when long time appointments for receive vaccine their want to remind from someone. These findings indicate a perception gap about rabies post exposure in the community that could motivate by increasing self-awareness. The results from this study can be applied to health information the most important for people, especially to increase awareness in human rabies post-exposure prophylaxis for effectively block pathogenesis caused by disease.

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INTRODUCTION

Rabies is a preventable zoonotic viral disease of mammals including cats, dogs, striped skunks, raccoons, bats, foxes, wolves, jackals monkeys, mongooses, arctic foxes [1], [2] and red fox [3] that caused by rhabdovirus of the genus *Lyssavirus* [4]. The virus is spread through the salivation of infected animals. Infected animals can spread the virus by biting, open wound, abrasion skin or the mucouse membranes [5]. Behavior related bite context of rabies exposures in people were delivering newspapers or letter, walking friends dog who had aggression towards other dogs, handling dogs (drying, grooming, touching, talking to), running in a park, grooming dog and delivering parcel to a neighbor's house [6]. Rabies is endemic disease Thailand [7]. Chiang Mai Province has 25 district; 204 sub-districts and 2,066 villages. From a rabies exposure report of ministry of Public Health which people who had rabies exposure experince 4,490 people in 2016.

People can be protected from rabies by either before exposure (pre-exposure prophylaxis) and Post Exposure Prophylaxis (PEP). Preventive immunization in people the most important especially live in enzootic area for rabies or high risk occupations such as laboratory workers, veterinarians, animal

handlers [8]. Because of the incubation period for rabies is typically 1 to 3 months but may vary from one week to one year so the World Health Organization (WHO) recommended for PEP. General consideration in rabies PEP include prompt washing and flushing wound for 15 minutes with soap and water, detergent, povidone iodine for virucidal activity, rabies PEP should be instituted immediately. PEP consists of a course of potent, effective rabies vaccine that meets WHO recommendations and administration of Rabies Immunoglobulin (RIG) into the wound followed by categories of rabies exposed. However if rabies immunoglobulin is not available on first visit use can be delayed by up to 7 days from the date of the first vaccine dose [9].

Health Belief Model (HBM) is social psychological approach. HBM consists of three group include individual beliefs, modifying factors and action. Individual beliefs compose of perceived susceptibility, severity, benefit, barriers and self-efficacy. Modifying factors or factors of personality are identified as age, gender, nationality, personality, social, economic and knowledge. While action is referred to cues to action interm of external and internal cues [10], [11].

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The health belief model would seem to be ideal for communication and will take action to prevent illness if they regard themselves as susceptible to a condition (perceived susceptibility), if they believe it would have potentially serious consequences (perceived severity), if they believe that a particular course of action available to them would reduce the susceptibility or severity or lead to other positive outcomes (perceived benefits), and if they perceive few negative attributes related to the health action (perceived barriers).

The belief that one can successfully complete self-efficacy, if they cue to action from something (action) respectively [10]. The objective of this study was to describe the perceptions and belief of rabies in people had experiences of uncomplete vaccination program PEP in the community.

MATERIALS AND METHOD

Study Area

Chiang Mai province is the second largest province (changwat) of Thailand. It is in the country's north and is about 685 kilometer from Bangkok. Surrounded by the mountain ranges of the Thai highlands.

More than six hundred cases of human rabies exposure have been rabies exposure report of ministry of Public Health (R.36) in four district between January to December in 2016, include

Sansai district (1,041) Mae Ai district (941), Hang Dong (722) and Fang (681).

Study Area

A cross-sectional study was performed in four districts Chiang Mai province, Thailand (Figure 1) between January and August 2017. Samples were selected from a rabies exposure report of ministry of Public Health (R.36) which people who had rabies exposure experience and uncomplete vaccination program for rabies post exposure in 2016.

Data Collection

Qualitative in-depth interviews was conducted in 12 participants by using semi-structured questionnaire of HBM. The HBM includes three factors group which influence health behaviors: Individual belief perspective (perceived susceptibility, severity, benefit, barrier, self-efficacy), modifying factors (age, gender, nationality, personality, social and knowledge) and action (Internal cues, External cues) (Table 1). The responses were recorded with two digital recording devices and written filed notes for 40 to 50 minutes per person. All participants were both male and female volunteers who had aged 18 years or over and actually been bitten one year ago in their home or work place.



Fig. 1. Study area of investigation of the health belief in human rabies post exposure prophylaxis (Hang Dong district, Sansai district, Fang district, Mae Ai district), Chiang Mai province

TABLE 1
SEMI-STRUCTURED INTERVIEW FOR PARTICIPANTS
INTERVIEW SCHEDULE (HUMAN POST EXPOSURE PROPHYLAXIS)

Individual belief perspective	
percieved susceptibility	How do you believe is the dangerous that you will get animal bite?
Perceived severity	What do you think about side effect of animal bite?
	Why/When do you go to the hospital?
Perceived benefit	How do you feel after you see a doctor?
	When you think you should go to see a doctor?
Perceived barrier	What are the barriers to see a doctor?
Perceived Self-efficacy	What do you thinks your take care yourself?
Modifying factors	How old are you?
	What is your nationality?
	How do you get rabies information sources?
	What do you do at your job?
	How much do you earn for your job?
	How do you known about rabies? (zoonosis, transmission, prevention and treatment)
	Observation (gender, personality, lifestyles)
Action	
Internal cues	Why do you see a doctor?
External cues	Who/What do you cues to action

Data analysis

Information form recording devices and notes were transcribed line by line and analysed using content analysis include manifest content and latent content.

RESULTS

Demographic Decriptive Data

Totally, twelve participants were recruited in this study, Characteristic of male and female ratio was 1:1 with median age about 49.8 (19-81) years old. Education levels of participants were elementary school (67%), beachelor degree (17%), secondary school (8%) and associate degree (8%). The demographic data of rabies post exposure prophylaxis participants was shown in Table 2.

Causes of human rabies exposure were carrying animals (25%), walking (25%), riding motercycle and bicycle (16.66%) and other (33.33%) such as separate dog fighting, near dog eating. There were defferent animal species and biting position. Dog was the main animal rabies suspected species (91.66%) which exposure to the participant while defferences of sit of wound were illustrated as leg (50%), calf (16.66%) and orther (33.33%) such as near right eye, forefinger and thumb that shown in Table 2.

Perception of rabies post exposure prophylaxis

The participants were uncompleat vaccination rabies post exposure believe that rabies is not dangerous diseases and can prevented by washed with water and only first injection for treatment such as;

“Believe that rabies is not dangerous disease”

Most of participant —animal bitten

In some cases, there were not opportunity to received vaccine after wound healing better. Perceived severity of most participants were not received vaccination if there were small wound and not present exudation from the wound.

“I have blood but not serious”

A2—bitten by dog on forefinger and thumb “I forgot” B3 and C1—bitten by dog on leg

All participants discontinued vaccination from the hospital and/or received vaccine late because they did not understand about the perceived benefits.

“I dont serious”

B2 — bitten by dog on leg

Perceived barrier of participants were recognized including unimpressive to meet a doctor, forget and working.

“I dont have time to see a doctor”

C1— bitten by dog on leg

Perceived self-efficacy, they believe that one can successfully complete self-efficacy to low. The most of participants need social or people obligation to assist.

Nationality of all participants were Thai with different age and gender, but there were similar free of charge for treatment.

“Because I’m old so I can’t see a doctor”

A1—51 years old

Knowledge of participants were not correct and someone were not answer when listen question such as;

“I think rabies can transmit from blood? (smile..... after that laughter)”

A1—bitten by cat on near right eye

“I don’t know”

B2, C3 — bitten by dog on leg and foot

Personality of participants were different because some people can talk and answer overconfident but someone not have eye contact when talking. Someone were not afraid rabies although animal bite. But someone there were present contrary because answer I know about rabies but not data completed.

Social of participants were not receive about rabies disease. The most people listen data by village headman and friend, so that in community data from subdistrict and village is the most important for increase awareness for protection health care complete.

For cues to action, The health motivation is the most important when long time appointments for receive vaccine there want to reminding from someone, (41.66%), social (16.66%) and other shown in Table 3.

TABLE 2
HUMAN POST EXPOSURE RABIES PROPHYLAXIS INTERVIEW KEY INFORMANT DEMOGRAPHIC DATA

Participant	Gender	Age	Education	Occupation	Status	Owner	District of Animal Exposure
A1	female	51	Elementary school	Contractor	Widowed	Yes	Hang dong
A2	male	32	Associate degree	Chef	Single	No	Hang dong
A3	female	53	Elementary school	Contractor	Married	No	Hang dong
B1	male	66	Elementary school	Painter	Married	No	San sai
B2	male	31	Bachelor degree	Engineer	Married	No	San sai
B3	male	19	Bachelor degree	Student	Single	No	San sai
C1	male	40	Secondary school	Shopkeeper	Married	No	Fang
C2	female	75	Elementary school	Contractor	Widowed	No	Fang
C3	male	81	Elementary school	Monk	Monk	No	Fang
D1	female	49	Elementary school	Shopkeeper	Separated	Yes	Mae Ai
D2	female	58	Elementary school	Contractor	Divorces	No	Mae Ai
D3	female	43	Elementary school	Farmer	Married	No	Mae Ai

DISCUSSION

Perceived susceptibility shown participants perception of the risk of disease or the pathology chances of disease [12]. This study, rabies exposure awareness of participants was low because they had limited knowledge of rabies. Perceived severity is also refer to they believe it would have potentially serious consequences. In this study, most of rabies exposure participants had insufficient consciousness about animal biting. Some of them who had wound was vaccinated in early stage because fear but after wound healing they did discontinue the program of rabies post exposure prophylaxis [13]. Rabies post exposure prophylaxis is the guideline of medical treatment for people were bitten by animal. For perceived benefit, most of participants thought that vaccination in the hospital was useful at the first vaccination only since there were no clinical sign and death of biting animal. For barrier, Participants thought that vaccination in the hospital had barrier because unimpressive

to meet a doctor and pain after injection. Someone they was working because low income. For self-efficacy they believe that one can successfully complete self-efficacy to low although self help but not understand complete follow by protocol treatment. Most of participants need someone for help care themselves.

However, post exposure rabies prophylaxis is the most importance for treatment and prevention human death from WHO recommendation [8] especially traveller there are live or travel in endemic area there are should prevention pre exposure prophylaxis [14] because the primary prevention is the better treatment after then. From an observational study of the health and demographics of four years of data (2012 -2015) in a low income community in South Africa. Rabies vaccination reduced the risk of death from any cause in the dog. That the protective association between rabies vaccination and all cause mortality prevention and against disease other than rabies [15].

Cost for PEP course of rabies vaccination revealed that

TABLE 3
TYPE OF POST EXPOSURE RABIES PROPHYLAXIS INTERVIEW KEY INFORMANT

Participants	Cause of exposure	Rabies Infected Species of Suspected Rabie Spreading	Site of Wound
A1	Carrying	Cat	Near right eye
A2	Carrying	Dog	Forefinger , Thumb
A3	Walking	Dog	Calf
B1	Walking	Dog	Leg
B2	Get into the dog house	Dog	Leg
B3	Walking	Dog	Leg
C1	Riding bicycle	Dog	Leg
C2	Carrying	Dog	Hand
C3	Alms gathering	Dog	Foot
D1	Separate dog fighting	Dog	Leg
D2	Touch dog while eating	Dog	Leg
D3	Ride motercycle	Dog	Calf

the most of thai people who had insurance card so they not pay for treatment but different in Philippine vaccine cost and affordability for PEP in hospital [13]. Gender from this study shown the male receive vaccination too late more than female because they believe self help, so males were more at risk than females too. For knowledge and practice about rabies of the most participant they not cover and complete so they did discontinue follow up by WHO recommendation [16]. Action factor is motivation for PEP. The health motivation is the most important when long time appointments for receive vaccine there want to reminding from someone such as family, sister, brother, social and friend so that should to increase informational support ,instrumental support,emotional support and appraisal support for increase cues to action.

CONCLUSION

Rabies remains a public health problem in Thailand. Although people can be protected from rabies by Post Exposure Prophylaxis (PEP) preventive immunization in people animal bite. But the most people are animal from a rabies exposure report of ministry of Public Health (R. 36) which people who had rabies exposure experience and uncomplete vaccination program for rabies post exposure in 2016. The purpose of the study was to investigate the perception of the health belief about

human rabies post exposure prophylaxis discontinued. The participant were not cover perception susceptibility, severity, benefit, barrier, self-efficacy and health motivation. There are not follow doctor recommendation. There was no opportunity to receive vaccine after wound healing. The most participant if small wound and not present exudation from wound they are not receive vaccination continued in hospital and,or receive vaccine late because not understands pathogenesis of rabies. In some case remembered the first treatment not impressed and afraid for receive vaccination continued. The participant low self-efficacy when long time appointments for receive vaccine their want to remind from someone. This study has analysis in people high risk groups that show perception and action of rabies post exposure prophylaxis. In future should collect data from multi household and human complete PEP for understand about problem in the community.

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Appendix

TABLE 4

HEALTH PROTECTIVE BEHAVIOR OF HUMAN POST EXPOSURE RABIES PROPHYLAXIS

Partici -pants	Individual beliefs				Modifying factor			Action	
	Perceived susceptibility	Perceived severity	Perceived benefit	Perceived barrier	self- efficacy	Knowledge	Internal	External	
A1	No	Oh ! It scratch near my eye	Discontin- ous	Miscommuni- cation Old	Self-help	I thinks transmisstion from blood ? (smile..... after that laughter)	Near eye	Son warned	
A2	No	Have blood but not seri- ous	See docter but discon- tinuous	No answer	Teacher- help	Blood from dog and airerosal	Dont know vaccina- tion	Dont know vaccina- tion	
A3	No	Multiple wound	Forgot	Have motorcy- cle only	Sister- help	Salivation	No answer	Sister warned	
B1	No	Have blood	Forgot	Working	Self-help	Nose and Mouth	No answer	Daugh- ter warned	
B2	No	Dont pain	Dont seri- ous	No answer	Self-help	Dont know	No answer	Dont have	
B3	No	Forgot	cannot remember	Distance	Social- help	I thinks bacte- ria from bird to humans	No answer	Watch TV	
C1	No	Forgot	Wound heal- ing	Dont have time to see doctor	Self-help	Should be- ware	No answer	Dont have	
C2	No	Wound is small size	Wound heal- ing	Waiting long time	Social- help	Salivation from hu- man and not zoonosis	No answer	Brochures	
C3	Yes	Mad people	Need to see doctor	Time	Self-help	Dont know	No answer	Family warned	
D1	No	Bleeding	Should to see doctor	Time	Daughter- help	Salivation from dog (only)	No answer	Daugh- ter warned	
D2	No	Zoonosis	See doctor after one day animal bite	Time	Self-help	Weekness in human	Afraid	No answer	
D3	No	Pain	Must to see doctor	My friend	Self-help	Dont know	Pain	No answer	