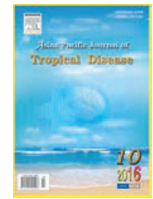




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Prevalence and factors of head lice infestation among primary school students in Northern Thailand

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ABSTRACT

Objective: To survey the prevalence of head lice infestation among primary school students in Chiang Rai Province, Northern Thailand from November 2015 to February 2016 and to investigate factors involving these infestations.

Methods: A total of 703 students were checked for head lice infestations. The data were analyzed by using descriptive statistics *i.e.* frequencies, percentages and correlations [odds ratio (OR) and 95% confidence interval (CI)].

Results: The overall percentage of head lice infestations was 15.1%. No infestation was found in boy students. The prevalence of head lice infestation was significantly associated with itching on a scalp (OR = 5.206, 95% CI = 3.116–8.696), having dirty fingernails (OR = 2.019, 95% CI = 1.217–3.352), wearing dirty clothes (OR = 4.532, 95% CI = 1.651–12.438), having history of head lice infestations (OR = 3.998, 95% CI = 2.174–7.356) and family member having history of head lice infestations (OR = 1.997, 95% CI = 1.092–3.651).

Conclusions: Pediculosis capitis is still public health problem in this region. Effective treatment is required to control this infestation in urgent.

1. Introduction

Pediculosis capitis or commonly known as head lice infestation is an infestation of *Pediculus humanus capitis*. It is a disease that causes apparent morbidity among school children worldwide[1]. Transmission is significantly found in overcrowded community due to highly frequent direct contact and re-infestation after successful treatment is also common. It is endemic globally including developed and developing countries located in tropical and temperate areas[2]. Schoolchildren are the most sensitive to the infestation rather than the other groups of population[3-5]. Average prevalence of pediculosis capitis in Asia was 15.1% ± 12.8%[1]. In Thailand, head lice infestation was also frequently found among primary schoolchildren. The 2010 report showed

high head lice infestation rate of 84.30%–88.40%) among primary schoolchildren in Ratchaburi Province near Thai-Myanmar border[6]. The 2012 report showed head lice infestation rate of 23.3% among school children in Bangkok[7]. Chiang Rai Province posits in the northernmost point of Thailand with the borders connecting to by Myanmar and Laos. It is also a home of many ethnic groups who immigrate into this province for habitation and occupation. Pediculosis capitis is also one of the important public health problems of this area. To control this problem, surveillance of head lice infestation should be done continuously. Therefore, this study aims to investigate prevalence and factors involving with head lice infestation among primary school students in Chiang Rai Province. The findings from this study may be useful for preparing control strategy to improve the public health conditions of primary school students in this area.

2. Materials and methods

2.1. Research design

A cross-sectional survey was administered from November

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The study protocol was performed according to the Helsinki Declaration and approved by the Ethical Review Committee of Chiang Rai Rajabhat University (ETH. CRRU 001/58). The legal guardians of all participants provided informed written consent.

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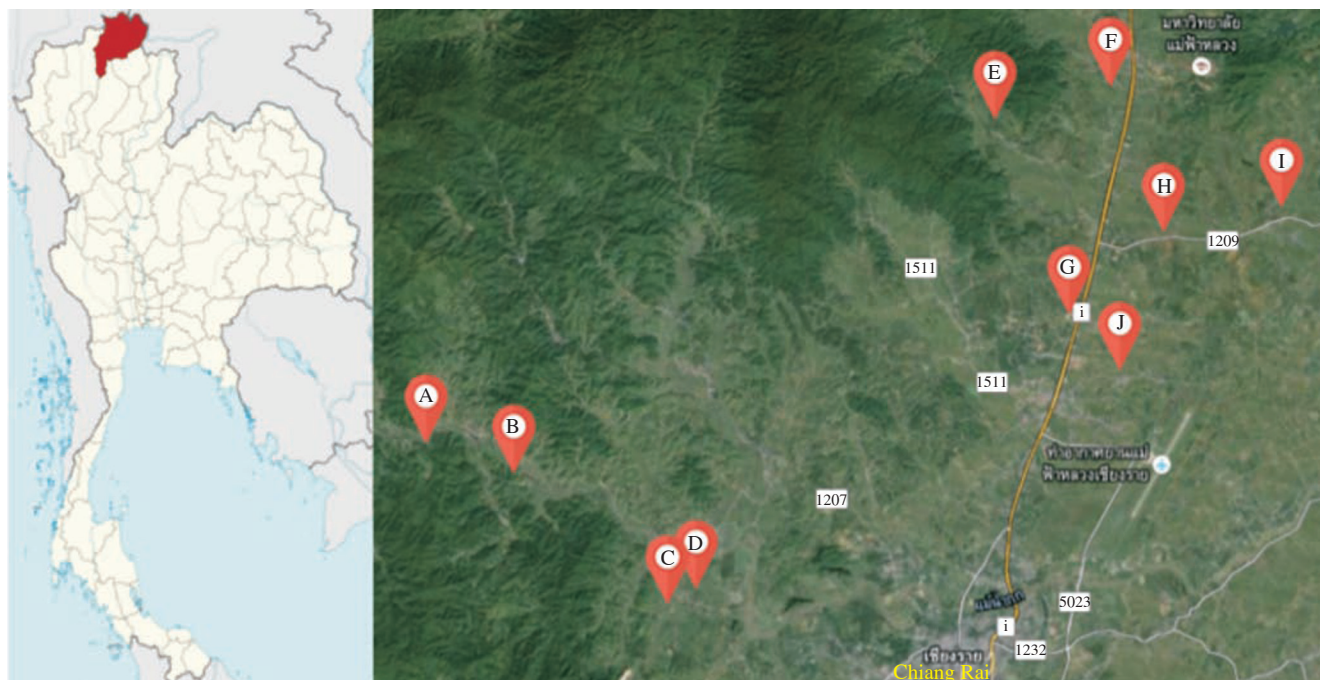


Figure 1. Locations of studied areas.

Left: Map of Thailand indicating Chiang Rai Province; Right: Locations of 10 schools in Chiang Rai Province where were recruited in this study (source: Google map). A: 19°57'29.7" N, 99°41'31.4" E; B: 19°56'54.4" N, 99°43'20.9" E; C: 19°55'17.1" N, 99°45'44.2" E; D: 19°55'28.2" N, 99°45'58.8" E; E: 20°01'40.3" N, 99°50'48.5" E; F: 20°01'58.8" N, 99°52'26.2" E; G: 19°59'49.8" N, 99°51'54.3" E; H: 20°00'13.3" N, 99°52'13.9" E; I: 20°00'26.4" N, 99°53'00.2" E; J: 19°59'00.1" N, 99°52'42.9" E.

2015 to February 2016 among 10 primary schools in Chiang Rai Province as shown in Figure 1. The research was reviewed and all examinations were carried out under permission of the teachers or the children's parents. A questionnaire was issued to the participants to collect socio-demographic data related to age, gender and factors that associated with head lice infestations.

2.2. Examination

The well-trained examiners checked the infestation status by visually scanning the students' heads by using a fine-toothed comb at three key areas of the head: frontal, temporal behind ears and occipital. The students were also observed for personal hygiene, type and length of hair, and the presence of skin diseases.

The students were marked positive for head lice infestation if any evidence of head lice was noticed such as detection of head lice adult or nymph and active or dead eggs[8]. No infestation was noted when the scalp was clear from any stage of lice.

2.3. Data analysis

Prevalence of head lice infestation was stratified according to socio-demographic characteristics. Descriptive statistics were used for the analysis of demographic data and prevalence of infestations. The odds ratio (OR) was used for determining the correlation between different groups and factors that associated

with head lice infestation.

2.4. Ethics

The study protocol was performed according to the Helsinki Declaration and approved by the Ethical Review Committee of Chiang Rai Rajabhat University (ETH.CRRU 001/58). The legal guardians of all participants provided informed written consent.

3. Results

3.1. Socio-demographic characteristics

The socio-demographic information of student was shown in Table 1. A total of 703 students (378 boy students and 325 girl students) from 10 schools were recruited. They were 6 to 16 years old. The majority of the participants was children who lived with parents. About 28.2% of all participants had 4 people in their family. Almost of all participants (74.5%) was non-ethnic group and 59% of parents were general employees.

3.2. Prevalence of head lice infestations

The prevalence of head lice infestations was shown in Table 1. The overall prevalence in this study was 15.1% and was found to be more prevalent in girls (32.6%) than in boys (0.0%). The socio-demographic characteristics that were found to be related to the

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