

# Prevalence and Determinants Factors that Influence the Behaviour of People with Pediculosis Capitis in Orphanage

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**Abstract.** Pediculosis capitis infestation is caused by *Pediculus humanus capitis* louse. The prevalence of the disease is still quite high in Indonesia. This disease can cause a variety of problems, from reduced self-esteem, negative social stigma, lack of quality sleep and learning disorders. The study aimed to determine the prevalence and determinants factors that influence the behavior of people with pediculosis capitis in orphanage Kemuning. The cross-sectional design were sampled whole orphanages in the three subdistrict. The respondents were interviewed and examined with pediculosis using a lice comb and a magnifying glass. Later, parasites were storage into bottles containing 70% alcohol. Results showed the prevalence of pediculosis capitis 62% (36 respondents). The highest category was in the age 11-16 years (50.9%); female (60%) and elementary education (54.5%). Based on the illness practice (100%) of the respondents had a bad illness behavior. There is no relationship of age, gender, education, and perception of illness behavior. Further research should proceed on best practice toward disease.

## 1 Introduction

Head lice infestation is a worldwide phenomenon that affects persons of all ages [1]. The human louse, *Pediculus humanus*, is an obligatory hematophagous parasite that thrived exclusively on human for around 5-7 million years ago [2][3]. Head lice (*Pediculus humanus capitis*) cause scalp irritation, social disruption, poor sleep, bacterial superinfection, and loss of school and caregiver work days [4]. Until recently, only the body louse acted as a vector for serious human disease [5]. Head lice infestations receive little medical attention or research funding [6]. They are often found in jails and in developing countries, nonetheless also re-emerging among homeless populations in developed countries [7].

There are hundreds of millions of cases of pediculosis worldwide [8]. Transmission is most commonly directly between individuals or indirectly by contact with linens, brushes,

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or clothes, according to the species [9]. Preliminary observations showed lack of environmental facilities and poor personal hygiene in the orphanage house. In the survey we intend to describe the knowledge-attitude- practice of the orphan with pediculosis capitis.

## 2 Materials and Methods

This is an observational analytic research with cross-sectional design to obtain the prevalence and the factors that influence the behaviour of pediculosis capitis in the Kemuning district, Palembang Indonesia. Population and sample study were located in three orphanages in Palembang.

Variables examined in this study were age, gender, education, knowledge and attitude toward parasites. Louse were stored in a bottle containing 70% alcohol, and labelled. Thus, prepared to be observed under a microscope in the parasitology laboratory of. Once the data is collected, the data is presented in the form of tables and figures.

### 2.1 Measuring instruments

Measuring instrument used in this study was a microscope and questionnaires. Respondents' hairs were examined, while questionnaires were used to obtain data on respondents' characteristic.

### 2.2 Statistics Analysis

The data obtained were analysed using SPSS program and displayed in tabular form. The relationship between the dependent variable and independent variables were determined by Chi-square test ( $\alpha = 0.05$ ).

## 3 Results and Discussions

### 3.1 Microscopic Examination

Picture 1-2 showed the *Pediculus humanus capitis*, in form of adult male and female. The microscopic examination used the magnification of 10X. Note that the male has a bigger claw, and spear in the genital part.



**Fig. 1.** *Pediculus humanus capitis*, adult male (10X).



**Fig. 2.** *Pediculus humanus capitis*, adult female (10X).

### 3.2 Questionnaire Analysis

Table 1 showed the prevalence of the disease, which was as high as 62%.

**Table 1.** Prevalence of pediculosis capitis (N = 55).

<b>Pediculosis</b>	<b>N</b>	<b>%</b>
Positive	34	62
Negative	21	38
Total	55	100

Table 2 showed the relation of age towards practice toward disease, which the dominant categories had a bad practice based on questionnaire.

**Table 2.** Relationship of age with the practice toward disease (N = 55).

<b>Age</b>	<b>Practice toward disease</b>			
	<b>Good</b>		<b>Bad</b>	
	<b>N</b>	<b>%</b>	<b>N</b>	<b>%</b>
5-10	0	0	23	41.8
11-16	0	0	28	50.9
17-23	0	0	4	7.2
Total	0	0	55	100.0

Table 3 showed the relation of gender towards practice toward disease, which the dominant categories had a bad practice based on questionnaire.

**Table 3.** Relationship of gender with the practice toward disease (N = 55).

<b>Gender</b>	<b>Practice toward disease</b>			
	<b>Good</b>		<b>Bad</b>	
	<b>N</b>	<b>%</b>	<b>N</b>	<b>%</b>
Male	0	0	22	40
Female	0	0	33	60
Total	0	0	55	100

Table 4 showed the relation of education towards practice toward disease, which the dominant categories had a bad practice based on questionnaire.

**Table 4.** Relationship of education with the practice toward disease (N = 55).

Education	Practice toward disease			
	Good		Bad	
	n	%	n	%
Elementary school	0	0	30	54.5
Junior high school	0	0	19	34.5
Senior high School	0	0	6	10.9
Total	0	0	55	100

Table 5 showed the relation of practice towards disease prevalence, which the dominant categories was the good category.

**Table 5.** Relation of perception with the prevalence (N = 55)

Perception	Practice toward disease			
	Good		Bad	
	N	%	N	%
Good	0	0	30	54.5
Bad	0	0	25	45.5
Total	0	0	55	100

Status of head lice as a vector of pathogens has been raised, since body louse-borne pathogens have been increasingly detected worldwide [10]. Our study represents an extremely high prevalence, 62%, and dominant factors that affects the occurrence of pediculosis capitis.

Age remained a significant independent risk factor for the presence of scabies. Increased prevalence of head lice with age may be due to the greater chances of close contact [11,12]. Children aged 6–12 tend to gather in big groups are unaware of transmission mechanism [13]. After children, the elderly were the most affected [14]. They spend more time with children, attend nursing homes or similar collective environments.

The prevalence of *P. h. capitis* was high in girls [15]. The predominance of long-haired girls may provide a reservoir for the survival and reproduction of lice [11,16]. This can be explained by the difference of hair length and hair styles between sexes [13]. Girls play in small groups with more frequent head-to-head contact among each other, while boys prefer playing outside during sports or rough activities [17]. Conversely, Iranian boy students were more infested than those in most other countries [18].

Personal hygiene plays important role in development of pediculosis capitis [16]. Sharing common comb caused head lice infestation transmission by sharing infested instruments including hats, scarves, sweaters, sharing common pillows, etc [12]. Regular hair washing were the factors that accounted for both age and sex difference in prevalence of Pediculosis [17] [18]. Designated combs have been used for effective removal of adult lice or nymphs of *P. h. capitis* from the head [19]. With the exception of hair length, individual and household characteristics are of minor importance to predict head lice infestations in a low-prevalence country [20].

## 4 Conclusion

The prevalence of pediculosis capitis in orphanages was 60%. The determinants characteristics were the majority of the age group 11-16 years, elementary education and, female gender. There is no relationship of prevalence with age, gender, education, and practice of illness. Further research should proceed on best practice toward disease.

## Acknowledgments

The authors greatly thank the Ministry of Research, Technology and Higher Education of the Republic of Indonesia for the grant. We are also grateful to the Head of Health Office Palembang of South Sumatra Province and the staffs who permitted allowing us to undertake research within the area.

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