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PREVALENCE OF PEDICULOSIS CAPITIS IN ORPHANAGES AND ISLAMIC BOARDING SCHOOLS IN THE SURAKARTA

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ABSTRACT

Residential environments such as orphanages and identical boarding houses have quite high population densities. This makes cottages and orphanages vulnerable and has a high potential for transmission of Pediculus Humanus var. capitis causes the disease Pediculosis capitis. This disease is an indicator of poor personal hygiene and the environment in which one lives. The higher the case of tick infestation, the worse the surrounding community becomes. This study aims to determine the prevalence of cases of pediculosis capitis in Islamic boarding schools and orphanages in the Surakarta.This research uses a descriptive research design with purposive sampling technique. The samples analyzed were the hair and scalp areas of 155 child and adolescent respondents in Islamic boarding schools and orphanages in Surakarta City. The data obtained was carried out by laboratory examination in the form of egg, nymph and adult flea stages as well as questionnaires filled out by respondents using guided interviews in the form of data on respondents' characteristics and personal hygiene status obtained through scoring. The relationship between Personal Hygiene and the incidence of Pediculosis capitis was analyzed using the chi-square test. From the results of research conducted on all respondents who were willing and met the criteria, it was discovered that of the 155 respondents, 59 (38%) were positive for pediculosis capitis and 96 (62%) did not experience pediculosis capitis. Sequentially, the highest cases were found in locations; Laweyan sub-district orphanage (76.7%), city orphanage (60%), Pasar Kliwon Islamic boarding school (36%) and Laweyan orphanage (0%). The personal hygiene status of the respondents in this case was 81% good, while 19% had poor personal hygiene status. In all cases that were found to be positive for pediculosis capitis, all of them were found to be in the egg, nymph and adult stages. The highest characteristics of positive cases were found in respondents with straight hair and longer than shoulder length. From this research, it was concluded that there was a significant relationship between personal hygiene and the cases of pediculosis capitis found. The point prevalence of pediculosis capitis in Islamic boarding schools and orphanages in the city of Surakarta is 38% of cases. As many as 81% of respondents had good personal hygiene status and 19% of respondents had poor personal hygiene.

Keywords: orphanages and islamic boarding schools; prevalence; pediculosis capitis; surakarta

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INTRODUCTION

If a person has a healthy body then of course that person can also carry out their daily tasks well and will be more productive (Hapsari, 2020). In everyday life, maintaining healthy behavior is very important, cleanliness and mental health must be valued and fought for. Therefore, clean behavior and maintaining health are part of specific primary prevention. Personal hygiene is an important aspect of personal health because personal hygiene becomes a barrier to the entry of microorganisms and the development of disease, both skin diseases and infectious diseases (Bohl et al, 2015). One of the health problems that can interfere with a

person's activities and productivity is pediculosis capitis (Handoko, 2015). This disease occurs due to the presence and colonization of Pediculus humanus capitis insects in human head hair. Chronic infections caused by lice can cause a person to experience anemia and cause psychological disorders such as lack of self-confidence (Gunning et al, 2012).

Pediculosis capitis infects many people who live in densely populated areas. Several things that influence its spread are influenced by factors such as; economic, social, educational, population density, characteristics of each person (age, type and length of hair), personal hygiene and environmental sanitation (Ansyah, 2013). Head lice outbreaks often occur when people gather together for long periods of time, such as in prisons or refugee camps or dormitories. All age groups can suffer from this disease, but children and adolescents are more susceptible to this condition. Vulnerable situations like this are experienced by children and teenagers who live in foster homes and boarding schools. The situation of foster and boarding children is that they are at risk of easily contracting various infectious diseases, especially pediculosis capitis. The clean and healthy living behavior of foster children and students can determine susceptibility to disease (Nengtyas, 2014). The aim of this study was to determine the prevalence of cases of pediculosis capitis that occurred in orphanages and Islamic boarding schools in Surakarta.

METHOD

This research uses an observational qualitative research design. Primary data was obtained from the results of laboratory examinations and questionnaires filled out by respondents using guided interviews. The target respondents in this population are children and teenagers who live in Islamic boarding school and orphanages dormitories. The sampling technique used purposive sampling with the criteria of not consuming drugs or using insecticides during the last year. Research data is presented descriptively in the form of microscopic examination of the Pediculus humanus capitis found as well as the personal hygiene status of the respondents and presented in the form of a case percentage.

RESULTS

Table 1.

Frequency distribution of pediculosis capitis in 4 different populations (Islamic boarding schools and orphanages)

Population	*Pediculus humanus capitis*	f	%
Islamic boarding school Pasar Kliwon	Positive	18	36
	Negative	32	64
Laweyan Orphanages	Positive	23	76,7
	Negative	7	23,3
Kota Orphanages	Positive	18	60
	Negative	12	40
Utara Orphanages	Positive	0	0
	Negative	45	100

The technique for removing head lice with the same principle is using a comb 10 times, namely 3 times on the right hair, 3 times on the left hair, 2 times on the back of the hair and 2 times on the front. The flea stages obtained (nymphs and adults) are collected using a container, namely white paper.

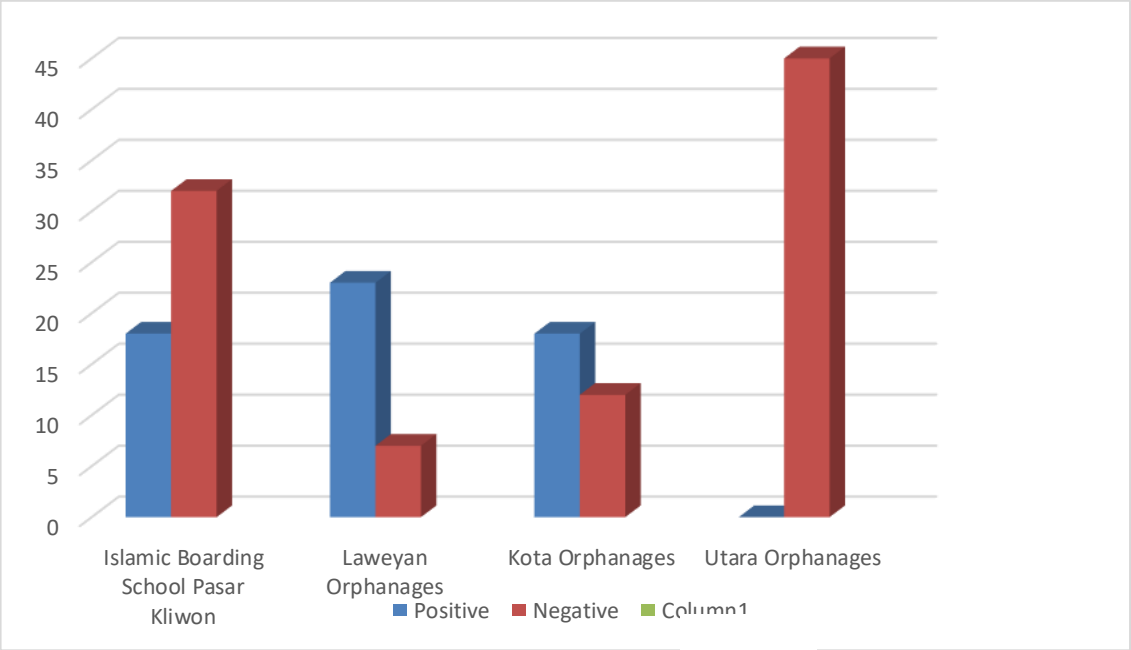

Figure 1. Incidence of Pediculosis capitis in 4 locations in the city of Surakarta

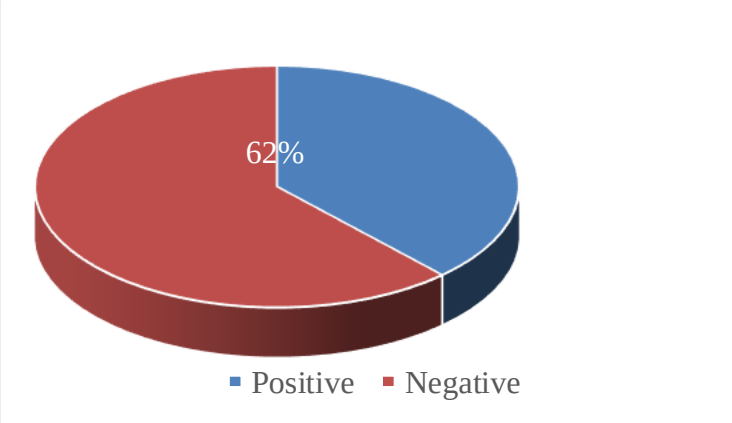

Figure 2. Total incidence of pediculosis capitis in Islamic boarding schools and orphanages in Surakarta

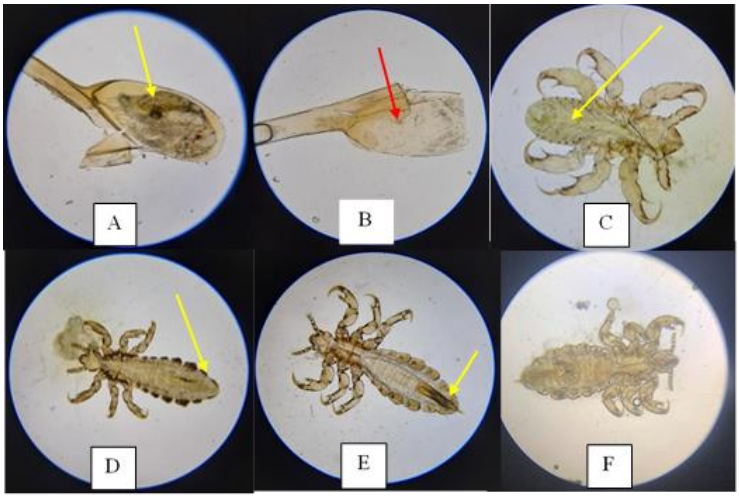

Figure 3. Laboratory examination results of Pediculus humanus capitis obtained from respondents A) Nits containing the embryo is shown by the yellow arrow at 100X magnification B) Eggs that have hatched are shown by red arrows at 100X magnification C) The nymph stage is seen with a short abdomen at 100x magnification D) The female adult stage shows the genital porus like the letter 'V' at the posterior end at 40x magnification E) Male adult stage with genital porus resembling a spear at 50x magnification F) poor preparation, unclear structure and dirty at 50x magnification

Table 2.
Behavioral Characteristics of Respondents as Indicators of Personal Hygiene Status

Behavior	Result	Population				Quantity	
		A	B	C	D	f	%
washing hair at least 3 times a week	Yes	15	30	30	60	115	74
	No	3	6	2	4	40	26
Use alternating head hair accessories	Yes	11	22	8	16	64	41
	No	7	14	24	48	91	59
Change or wash bed sheets, pillowcases, every 1-2 weeks	Yes	6	12	30	60	72	46
	No	12	24	2	4	83	54
Sleep in the same bed	Yes	16	32	31	62	74	48
	No	2	4	1	2	81	52
Change clothes 2 times a day	Yes	7	14	7	14	127	82
	No	11	22	25	50	28	18

Note : A. Islamic boarding school Pasar Kliwon
B. Laweyan Orphanages
C. Kota Orphanages
D. Utara Orphanages

Table 3.
Frequency Distribution of Pediculosis Capitis Incidents with Personal Hygiene Status

Population	Status	Positive	Negative	%
Islamic boarding school	Good	15	32	94
Pasar Kliwon	Poor	3	0	6
Laweyan Orphanages	Good	10	3	43
	Poor	13	4	57
Kota Orphanages	Good	20	1	70
	Poor	7	2	30
Utara Orphanages	Good	45	0	100
	Poor	0	0	0

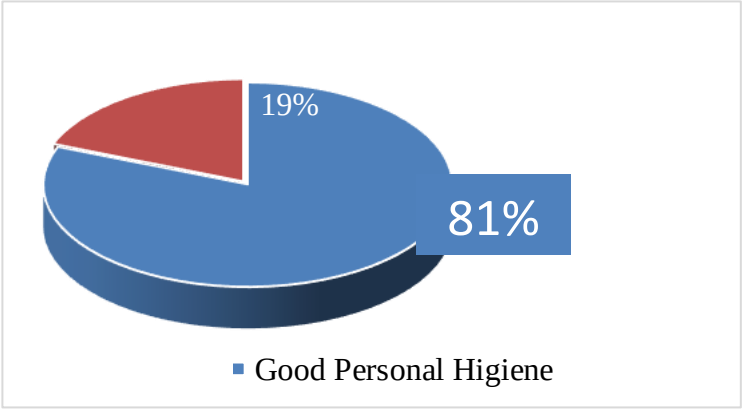

Figure 4.
Personal Hygiene Status of Respondents Regarding the Incident of Pediculosis Capitis

Table 4.
Distribution of Respondents based on Hair Characteristics

Pediculus humanus capitis	*Pediculus humanus capitis*		Jumlah	
	Positive	Negative	f	%
Long	80	16	96	62
Medium	29	19	48	31
Short	1	10	11	7
Straight	72	55	127	82
Waves	5	12	17	11
Curly	4	7	11	7

DISCUSSION

Most of the results of this research came from female respondents spread across Islamic boarding schools and orphanages as research targets. In all conditions found, especially in cases of mild infestation, when the nymph stage was carried out, eggs and nymphs were mostly found at the nape of the back of the head and the hair behind the ears. This is in accordance with Solikhah, A.I. (2022) who stated that the favorite areas for eggs to stick are near the ears and the back of the head. Meanwhile, in cases of heavy infestation, the number of lice attacks is extraordinary, apart from the sides and back of the head, the lice and egg stages are also found on the top of the head.

Respondents with severe pediculosis capitis were found evenly in 3 (three) locations. The respondent experienced a large number of lice infestations which were visible from each strand of hair with 4-7 stages of eggs attached to it. This condition is exacerbated by the presence of nymphs and adult stages which are very easy to find when hair strands are opened to check for inflammation and secondary infections on the scalp. There were two respondents who experienced inflammation with the first condition being mild, namely the scalp was red in several locations, and the second respondent had crusts appearing on his scalp where the respondent felt pain when that part of his head was exposed to water. In the second respondent, the structure of his hair became very tangled with an unpleasant smell that tended to be rotten. From the results of laboratory examinations, all stages were examined to study the structure of the tick in more detail. The stages of the eggs examined showed that the lice eggs which still contained embryos were found in the position of the eggs close to the scalp when they were taken. On the other hand, eggs that are empty or have hatched are often found on strands of hair that are positioned more in the middle and closer to the ends of the hair (fig 3). This is in accordance with research by Feldmeier et al., (2013) that Pediculus humanus capitis will lay its eggs in the hair close to the head to make it easier for the nymphs to get blood immediately after hatching.

The nymphal and adult stages of Pediculus lice are the stages that are actively feeding on blood. Where the discovery of nymphs and adult lice plus the egg stage indicates that the patient has been infested with Pediculosis capitis for a long time, Iswara. (2017). In the cases found, there was no single stage in the respondents who were positively infested, so it can be concluded that all respondents who were positive had been infected with lice for a long time. The more often adult fleas are found, the more fleas will reproduce to produce new fleas so that the possibility of experiencing complaints and abnormalities becomes greater. Based on Figure 3, it can be seen that the length of soaking in KOH 10% affects the quality of insect preparations, this is in accordance with research (Hidayani dkk, 2018). Clearing time greatly influences the final results of the preparations made. In this examination, the egg and nymph stages are soaked for less than 12 hours, while the adult stage is soaked for 12-18 hours to produce good results. Soedarto (2011) explains that the stage of making the preparations is a thinning process with KOH 10%

solution for 1-10 hours (depending on the thickness of the insect's skin pigment). If soaking for too long will cause the chitin layer to become too thin and ultimately result in damage to the body parts of Pediculus humanus capitis. There are examples of Pediculus lice that were soaked in KOH for more than 12 hours so that they became unclear, blurry and easily damaged, found in Figure 3 F.

Based on the cases found (table 1 and figure 1), respectively, the highest cases of Pediculosis capitis infestation were found at the location ; Laweyan Orphanages (76,7%), Kota Orphanages (60%), Islamic boarding school Pasar Kliwon (36%) and Utara Orphanages (0%). With the overall prevalence of cases found being 38% of cases (fig. 2). How many cases arise is then related to the behavioral status of the respondent or personal hygiene, in which case the behavioral characteristics of each respondent are assessed through interviews (table 2). Interpretation of personal hygiene status is divided into 2 categories, namely the good category with a score of 4-5 and the poor category with a score of 0-3. Personal hygiene conditions ranked from best to worst sequentially at the location ; Utara Orphanages, Islamic boarding school Pasar Kliwon, Kota Orphanages, and Laweyan Orphanages. In this case, 81% of respondents' personal hygiene status was good, while 19% of respondents' personal hygiene status was poor.

The results of the chi-square test analysis (continuity correction) of the relationship between personal hygiene and the incidence of Pediculosis capitis showed an Asymp.Sig value of 0.01 < 0.05, so it was concluded that statistically there was a significant relationship between personal hygiene and the incidence of Pediculosis capitis. From the behavioral characteristics of respondents in table 2, only the behavior of "changing/washing bed sheets, pillowcases, once every 1-2 weeks" has the highest score with poor status. Even though in the cases obtained, the majority of respondents showed good personal hygiene, this will not simply eliminate the risk of pediculosis capitis. In mild cases, it is not uncommon for pediculosis capitis not to be discovered or realized by oneself but by someone else. This happens more because our eyes are limited in seeing parts of our own head and usually the clinical symptoms that appear are mild so the sufferer ignores them.

Based on table 4, it can be seen that the infestation of pediculosis capitis was higher in respondents with long hair (more than shoulder length) compared to respondents who had medium length (shoulder length) and short hair (less than shoulder length). This supports research by Maryanti dkk (2018), namely that children who have long hair are more likely to be infested with head lice. This research is not much different from research conducted by Rahman (2014), namely that Pediculus humanus capitis infestation was high in children with long hair at 59.3%. In this case, the highest incidence of pediculosis capitis (62%) occurred in respondents with long hair, followed by the incidence of respondents with medium length hair (31%) and short hair (7%). Likewise with hair type, respondents with straight hair (82%) predominantly had pediculosis capitis, followed by wavy hair in 11% of cases and curly hair in 7% of cases.

CONCLUSION

The results of this study concluded that there was a significant relationship between personal hygiene and the cases of pediculosis capitis found. The prevalence of pediculosis capitis in Islamic boarding schools and orphanages in the city of Surakarta is 38% of cases. The highest cases occurred in the Laweyan District Orphanage and the lowest cases occurred in the Laweyan Foster Children in Surakarta City. The case affected respondents with straight, long hair beyond their shoulders.

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