

Prevalence of Head Lice at the Primary Schools in Damghan

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Article information	Abstract
<p>Article history: Received: 4 Jan 2013 Accepted: 26 Apr 2013 Available online: 18 Aug 2013 ZJRMS 2014 Nov; 16(11): 47-49</p> <p>Keywords: Prevalence Head lice Girl students Primary schools</p>	<p>Background: This survey was done to determine the prevalence of head lice (<i>Pediculus capitis</i>) at the girls of primary schools in Damghan district.</p> <p>Materials and Methods: In this descriptive study 2700 students was examined and data of them recorded in questionnaire and analyzed by χ^2 test using SPSS-12.</p> <p>Results: Totally 97 students (3.6%) were infested with pediculosis. There was a significant correlation between the age, habitat and infection rate ($p < 0.05$).</p> <p>Conclusion: According to the result of this study head lice infestation is the health problems in schools. Therefore controlling program must perform to prevention the prevalence of pediculosis.</p>

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Introduction

Infection by insects, especially external parasites such as lice, is a threatening factor to public health [1]. Human head or body lice infection is called "pediculosis" [2]. Body lice are vectors of diseases such as louse-borne typhus, trench fever, and epidemic relapsing fever [2]. Head lice infection is seen in all social and economic classes, which is considered as a common disease among students. Itchy scalp, depression, academic failure, insomnia, losing social status, secondary infections, and incidence of allergy are the complications of pediculosis [3].

Over hundreds of million cases of this disease are estimated worldwide [4]. Head lice infection is more prevalent among female students. The disease is common in most parts of Iran, mostly seen among 6-11 year-old students. The high prevalence of the disease among this age group of students was the main reason for selecting this group for the present study [5, 6]. In a study conducted on 10,991 elementary students in Sari, 215 students (1.9%) were infected with pediculosis. The prevalence of the disease in girls and boys schools was 3.7% and 0.5%, respectively [6].

In a study conducted in the elementary schools of Bandar Abbas, 27.12% of the 3,249 male and female students were infected with head lice. This rate was higher in girls than boys, and a significant relationship was observed between infection and the variables of sex and grade level [7]. Girls' long hair and covering it are some of the causes of higher infection in girls than boys, which leads to lack of timely diagnosis and consequently, spread of infection [5].

Studies indicate that the prevalence of infection is usually higher in rural areas than urban areas [6, 8]. Since no study has been conducted on pediculosis in Damghan county yet, the present study was conducted to determine the prevalence of head lice infection among the female students of elementary schools.

Materials and Methods

This cross-sectional descriptive and analytical study was carried out on 2,700 female students in the elementary schools of Damghan County in 2008. Damghan county is located in Semnan province, including the cities of Damghan, Amirieh, and Dibaj. The students were examined by trained people. Their hair (especially behind ears and above necks) was examined for 5 min in the enough light. Diagnosis of the infection was based on eggshells, alive eggs, nymphs and adult lice. If the infection was diagnosed, the subject was treated and other family members of patient were also examined and treated, if necessary. While examining the students, correctly understanding the questions and students' treatment, mental issues, maintaining individual's dignity, paying attention to values and social criteria were considered. In addition, the students were examined by health care workers and female health educators. Data collection was carried out using a questionnaire. The variables of this study included: age, grade level, place of residence, itchy scalp, history of pediculosis in the past three months, and infection in family, which were recorded on the data collection form. After entering SPSS-12, the data were analyzed using χ^2 test with 95% confidence interval. The significance level of the findings was $p \leq 0.05$.

Results

From among 2,700 students in the study, 2,138 and 562 students lived in urban areas and rural areas, respectively. In total, 97 students were diagnosed with pediculosis, and the overall infection rate was 3.6%. Among the students, 64 lived in urban areas and 33 lived in rural areas. The prevalence of infection in rural and urban students was 5.9% and 3%, respectively.

This difference is statistically significant ($p<0.002$). Fifty four students complained about itchy scalp, among whom 35 (64.8%) were infected with lice. A significant relationship was seen between itching and infection ($p<0.029$). Infection rate increased as students' age and grade level increased so that most infected cases were seen among fifth graders ($p<0.029$). Distribution of infected patients in first to fifth grades was 11.3, 15.5, 19.6, 22.7 and 30.9, respectively. Table 1 shows the frequency of pediculosis among the female elementary students of Damghan county by grade level and place of residence.

Table 1. Frequency of pediculosis among the female elementary students of Damghan County by grade level and place of residence

Grade level	Residence		Total N (%)
	Urban N (%)	Rural N (%)	
1	7(7.2)	4(4.1)	11(11.3)
2	10(10.3)	5(5.2)	15(15.5)
3	13(13.4)	6(6.2)	19(19.6)
4	14(14.45)	8(8.25)	22(22.7)
5	20(20.6)	10(10.3)	30(30.9)
total	64(66)	33(34)	97(100)

For 23.7% of the infected students, the infection was observed among other family members, too. There is a significant relationship between students' infection and prevalence of disease in family ($p<0.0001$). The present study showed that 20.6% of the patients with head lice had a history of infection and treatment three months prior to the study. There is a statistically significant relationship between the prevalence of infection and history of infection ($p<0.0001$). In 16.5% of the cases, there was more than one infected case in a class.

Discussion

In this study, the prevalence of pediculosis among students was 3.6%, which is lower than other studies in the country (Iran) and indicates the activities of health and education center in preventing the disease. Shahraki et al. determined the infection rate among the elementary students of Yasouj city as 21.8% [9]. In a study conducted on the elementary girl's schools of Ahvaz, Rafiei et al. determined the infection rate as 11% [10].

Itching is the most important clinical sign of head lice infection, which is caused by the stimulant chemical compositions of lice saliva. In the present study, 64.8% of those complaining about itchy scalp were infected with head lice. This confirms the relationship between itching and infection. This finding is consistent with the results of other studies in the country (Iran) [5, 10]. In the present study, the prevalence of pediculosis among rural students was almost two times higher than urban students. In other studies in Iran and the world, the prevalence of infection was also higher in rural areas [5, 6, 8, 11, 12]. Apart from cultural differences and health behaviors, family size and

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access to health care facilities are some of the reasons for this finding.

In general, a person infected with head lice more than once is more susceptible to the infection than those with no history of head lice infection. In this study, there is also a significant relationship between the history of infection and current infection, which is similar to other studies [5, 11, 12]. In the present study, infection rate increased as students' age and grade level increased so that most infected cases were seen among fifth graders. This finding is consistent with the studies conducted in Khomeini Shahr [13] and Sanandaj [14]. Infection increase as age growth seems to be due to the fact that girls, at younger ages, are more controlled by their mothers in terms of bathing and personal hygiene. However, as students grow older, this control is reduced, which can justify higher infection at older ages. In 23.7% of the infected students, the infection was identified in other family members, too. Therefore, it is necessary to educate families about the disease, its symptoms, prevention methods and treatment. In 16.5% of the cases, there was more than one infection case in each class, which proves that lice are transmitted by close contact. Given that the schools were crowded and the students were greatly connected with each other, the necessary training must be provided for them [2, 3, 7, 15].

It can be concluded that pediculosis is still considered as a health problem in schools. Therefore, it is recommended to provide teachers, school health workers, students and their parents with the necessary training to prevent and control the infection. Raising society's awareness, improving health behaviors, and diagnosing and treating patients are some of the ways to control the pediculosis. This requires that the health sector extensively coordinate and cooperate with the department of education.

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Authors' Contributions

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Conflict of Interest

The authors declare no conflict of interest.

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