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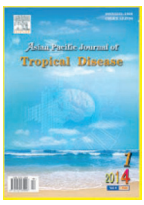

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Examining the prevalence rate of *Pediculus capitis* infestation according to sex and social factors in primary school children

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PEER REVIEW

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Comments

This is a well designed study in which the researchers examined the frequency of head lice infestation in school children and reported association between the health condition of the family, health teacher and affliction to the disease.
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ABSTRACT

Objective: To determine the prevalence rate of head louse infestation among elementary students, and examine the associated factors with infection in the city of Aran and Bidgol.
Methods: A total of 19 boys' and girls' primary schools were selected by multistage, systematic random sampling. Overall, 3590 students were examined for head lice infestation in urban areas of Aran and Bidgol during 2008. The diagnosis was based on live louse or nit on the scalp of students. The students were screened by standard questionnaire and demographic data in addition to related information were obtained by interview and observation. The data were analyzed by SPSS software using chi-square and Fisher's exact tests.
Results: The mean age of students was (8.68±1.58) years ranging between 6-12 years. The total prevalence of head louse infestation was 0.47%. This rate was 0.42% and 0.05% in female and male, respectively. There was a significant association between pediculosis and sex, father's job, mother's education, access to bathroom in home, prior infection, drug use and nationality, respectively (P<0.05).
Conclusions: The results showed that pediculosis was not a major health priority among primary school in city of Aran and Bidgol. However, enhancing the knowledge of students about head lice infestation and the existence of health teachers in schools can play a significant role in disease control.

KEYWORDS
Head louse infestation, Students, Primary Schools, Iran

1. Introduction

History of pediculosis infection dated back to prehistoric time. The oldest nit louse fossil discovered is about 10000 years old[1]. Lice are found in all countries in the world and in different climatic conditions. During the past three decades, the world has witnessed an increase in the prevalence of lice infestation. Such condition has made the health authorities as well as the health professionals consider its diagnosis and treatment as an important matter. Three types of lice including body and head lice and crab louse are the most common human ectoparasite. Lice are blood sucking insects and belong to the Anoplura order within the Pediculidae family. In recent decades, numerous cases of head louse infestation have been reported throughout the world yearly. Head louse prevalence in school-age children is more common. Every year more than 12 millions of cases have been

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reported in the United States alone and in Belgium, 8.9% of children within the age group 2.5 to 12 are infested to head louse[2-4]. A study in Turkey reported that 16.6% of children in Izmir were infested to head louse[5]. The prevalence of head louse infestation in Czech Republic and Slovakia has been reported twice in the year 2005. In these countries, the prevalence of live louse and nit in children age group 6-15 were 14.1% and 9.8%, respectively[6].

In addition, various rates of head louse infestation from different parts of Iran have been reported. Head louse infestation study in school children of Khajeh, East Azerbaijan Province showed that the infestation rate was 4.8%[7]. One study in the region of Amlewsh in the province of Gilan reported the infestation rate of 9.2% while another study in the province of Ardebil showed the higher infestation rate of 28.5% to head lice in school children[8,9]. The prevalence of head lice was 1% in Fars, 12.27% in Bandarabbas and 19.7% in Sanadaj[10-12].

Patients with head lice usually complain of itchy scalp area behind their neck and the ear expand. In the case that there is wound or secondary infection such as impetigo, treatment is necessary. In patients with head lice, lymphadenopathy in lymph nodes behind the ears and neck are not uncommon. Reaction to the lice bites may cause pruritic papules and urticaria. That condition depends on the duration of blood sucking of lice. In addition, new bites by lice in other parts of the body may lead to the relapse of the previous bite. Di Stefanie *et al.* claimed that there was a significant association between pediculosis and factors such as poor health and poverty, and infestation to this disease causes social stigma; therefore, many cases of infestations go unreported[13].

Considering the importance of the subject and the adverse effects of disease and mental health in society, and the necessity for pediculosis control, this study was conducted to determine the prevalence of head lice infestation and some risk factors associated with the infestation rate in elementary boys' and girls' school students, in Aran and Bidgol of Esfahan Province, Iran.

2. Materials and methods

This cross-sectional descriptive study was performed in 19 primary schools of Aran and Bidgol, Esfahan Province, Iran during October to December 2008. In this study, a total of 3589 elementary school students between 6-12 years old (2096 boys and 1493 girls) from all grade 1-5 were selected by multistage, systematic random sampling in urban areas in Aran and Bidgol.

The students' hair and scalp were examined by 2 trained examiners under the supervision of medical entomologist.

The diagnosis of head lice infestation was confirmed by clinical inspection of scalp and hair under the light of a reading lamp and by using a manual magnifier for the presence of eggs (nits) and nymph or adult lice, approximately 5 min.

In the questionnaire, personal details such as sex, age, school grade, family size, employment and education of parents, size and mode of hair, number of uses of comb per day, sharing personal items, itching place in the head, history of louse infestation, presence of one of life stages of lice (eggs, nymph oradult) in the head, frequency of hair washing, bath at home, school health educator and nationality were recorded. The data were analyzed by SPSS software by using statistical tests including chi-square and Fisher's exact test at alpha level equal to 0.05.

3. Results

Over a 3-month period, 3590 elementary school students of 19 schools including 2096 boys (58.4%) and 1493 girls (41.6%) were examined. The mean age of these pupils was (8.68±1.58) years within the range of 6-12 years. The overall infestation rate in the studied population was 0.47%. The infestation rate among the girls and boys was 0.42% and 0.05%, respectively. The ratio of affliction in girls was 8 times higher than the boys and this difference was statistically significant (P=0.0001). The frequency rate of infestation to nit was 88.2%. Approximately, 17.8% of those afflicted carried live lice. About 1% of students in the girls' schools and 0.1% of student in the boys' schools were infested to head louse (Table 1).

Table 1

Prevalence of head louse infestation in primary school students by sex a and social factors in Aran and Bidgol, Iran.

Characteristics	No. of Infestations	No. of Examination	Prevalence (%)
Sex			
Girls	15	1493	1.00
Boys	2	2096	0.10
School grade			
I	1	717	0.14
II	4	685	0.58
III	6	710	0.85
IV	3	735	0.41
V	3	742	0.40
Father's occupation			
Worker	7	1668	0.42
Free	5	998	0.50
Ranchman and farmers	2	57	3.50
Cultural	1	297	0.34
Driver	1	104	0.96
Clerk	1	412	0.24
Others	0	53	0.00
Mother's education			
Uneducated	5	388	1.28
Primary	10	1690	0.60
Guidance	0	528	0.00
Diplomaor upper	2	983	0.20
Bath at house			
Yes	16	3583	0.45
No	1	6	16.70
Nationality			
Iranian	11	3387	0.32
Not Iranian	6	202	2.57

The infestation rate by school grade was 0.14%, 0.58%, 0.85%, 0.41% and 0.40% for first, second, third, fourth and