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The prevalence of pediculosis capitis and relevant factors in primary school students of Kashan, Central Iran

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PEER REVIEW

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Comments

This study is a comprehensive research about lice infestation among the primary school students in a dry tropical climate with applicable results to improve public health.
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ABSTRACT

Objective: To help health authorities in adopting the ways to control pollution in the Kashan city and improve public health.

Methods: In descriptive epidemiologic research, 2151 students were examined in 23 male and female schools. Their hair was examined for head louse infestation. Demographic data and related information were obtained by interview and observation. The data were recorded in the standard questionnaire and analyzed by SPSS statistical software by using *Chi*-square and fisher's exact tests.

Results: The prevalence of head louse infestation in students was 0.70%. This survey showed that 0.75% and 0.60% of the students in female and male schools were infected to head louse respectively. Statistical tests showed significant relation between pediculosis and, father's and mother's job, father's and mother's education, previous history of infection, itchy scalp and school health teachers ($P<0.05$).

Conclusions: The study indicated that the prevalence of pediculosis wasn't a major concern and health priority in Kashan's schools (2013). However, it was suggested that individual hygiene should be considered as a priority in the city to prevent the increase of infestation incidence, and also measures should be taken to increase the level of knowledge of individuals within the city.

KEYWORDS

Students, Elementary schools, Pediculosis, Iran

1. Introduction

The public health is one of significant issues in every society and infestation with insects is a common public health problem[1]. Three types of blood-sucking lice occur on humans, the body louse (*Pediculus humanus*), the head louse (*Pediculus capitis*) and the pubic or crab louse (*Pthirus pubis*). All three species of lice have a worldwide distribution[2]. Infection with head lice (pediculosis) is already a worldwide, common and serious pollution and is one of the health problems of human societies in different countries including United States, Brazil, Canada, France and India[3].

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The official reported cases do not reflect the extent of problem because the patient record system does not include all the infected. The disease occurs in both sexes, but it is more common in girls. Disease outbreaks aren't related to specific age groups but children are of the most vulnerable age group and the high level of pollution intensity. Long-term close contact with each other is the most common and major transmission path. Lice in these students may cause them to fall behind in school in addition to health problems and adverse psychological effects and social pressures. Due to the importance of the issue and health and adverse psychological effects on society and the need to control pediculosis, examination of the elementary school children is important. Evaluation of head lice infestation will lead to early detection and treatment that prevent the occurrence of complications such as bacterial infections and other infectious diseases. Considering that the recent scientific study was not accurate, elementary school students were studied in Kashan city. The results of this study will help health authorities in adopting the ways to control pollution in the region.

2. Materials and methods

A cross-sectional descriptive study was performed in 23 primary schools of Kashan, Esfahan province, Iran from November 2012 to May 2013. Data were obtained by the observation method and multi-stage sampling was conducted.Cluster sampling conducted in areas of the city was considered to form a cluster. Elementary male and female schools were randomly selected in each cluster. A total of 2151 school children (1077 males and 1074 females) between 6-10 years old were examined. The mean age of these students was 7.92±1.52. All students in the selected schools were examined by trained and experienced researchers under the supervision of medical entomologist.

The diagnosis of pediculosis was confirmed by clinical inspection of scalp and hair under the light of a reading lamp and by using a magnifier glass for the presence of egg and nymph or adult lice, approximately 5 min. The suspicious samples were evaluated in laboratory using a stereomicroscope. A special questionnaire was completed for students. The questionnaire included personal details such as age, sex, school grade, occupation and education of parents, bath at home, frequency of bathing, sharing personal items, history of previous pediculosis, family size, size and mode of hair, itchy scalp, presence of one of life stage of louse (nit, nymph or adult) in the head, awareness of louse infection, previous treatment history, drug usage, school health educator and nationality.

3. Results

The overall pediculosis infestation rate was 0.7% (among the girls and boys were 0.75% and 0.6% respectively). The ratio of head lice infestation in girls was estimated 1.25 times higher than males. Statistical test showed no significant difference between head lice and sex. The frequency rate of infestation to nit and live lice were seen 0.8% and 0.1% respectively. About 1.5% of second grade and 1% of fifth grade elementary students were infected with head lice in comparison with other grades having higher infection. There was not any significant association between pediculosis and different educational grades. There was statistically significant association between pediculosis rate in students and father's job (P=0.002). About 0.6% of students whose fathers were self-employed were infected with head lice. In this study, a significant relationship was observed between head lice infestation and mother's occupation (P=0.0001). Approximately 85.7% of students with lice whose mothers were housekeeper. Statistical analysis showed that there was a significant relationship between pediculosis and different educational levels of students' parents (P=0.0001). Perhaps 35.7% of students with head lice had uneducated mothers or fathers with primary education. Although statistical test showed no significant relationship between two variables of family size and head lice, 50% of infected students were living in the four-person families. Probably 98.4% of students had bathroom at home. All children with pediculosis have had a bath at home. There was no significant relationship between bath at home and pediculosis capitis. Between the number of weekly bathing and head lice, there was not a significant relationship. About 50% of infested cases took shower twice a week. Roughly 57.1% of them used shared personal belongings such as hair brushes, head covers, hats and so on. There was no significant association between the infestation and shared use of personal items. In total, 9.5% of students in this study complained of itchy scalp. About 3.4% of students suffering from itchy scalp had pediculosis. *Chi*-square test between the two variables of itching of the scalp and head lice infections showed a significant relationship (P=0.0001). Approximately 50% of students with head lice comb their hair twice per day. Half of current students with head lice in the past had a history of infestation. Fisher exact test showed a significant difference between infestation to head louse and previous history of disease (P=0.0001). Maybe 74.1% of the cases had short hair. Among the hair length and hair condition (straight or curly) and pediculosis, there were not significant relationships. In the study, 3.2% of the subjects infested to head louse referred to physician and consumed medication. Statistical test showed a significant correlation between drug use and head lice infestation (P=0.001). Probably 85.2% of the students in this study were Iranian and others were non-Iranian. In this study, 64.3% of students with pediculosis were Iranian and the others were non-Iranian. The Iranian students were less infested than the other nationalities in this study. About 0.5% of Iranian students and 1.6% of non-Iranian students had lice. There was no significant association between the nationality and infestation. Perhaps 72.6% of students were studying at schools that did not have health teacher. About 78.6% of students with head lice were in schools that had no health teacher. *Chi*-square test