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PREVALENCE OF HEAD LICE INFESTATION AND ITS ASSOCIATED FACTORS AMONG PRIMARY SCHOOL STUDENTS IN ZABOL

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Abstract:

Pediculuscapitis (Anoplura: Pediculidae) or head louse is an obligate ectoparasite transmitted mainly through physical contact. This study was conducted to survey the prevalence of head lice infestation rate and some risk factors in Primary School pupils, in Zabol City, Sistan v balouchistan Province, Iran. We selected 6 h schools of Zabol 2013 and 2015. Totally 500 pupils including 200 boys and 300 girls from all grade 1-5 were selected by multistage, systematic random sampling in rural areas of Zabol City and were examined for lice. In addition, a standard questionnaire recorded information about demographic features of each pupil. Results were analyzed by SPSS software. The total prevalence of head lice infestation in this study was 4.8%, and the prevalence rate was significantly higher in girls (6.66%) than in boys (2%). Epidemiological factors such as: sex, school grade, family size, parent's education, type of house, hair washing (per week), number of using comb per day, were evaluated and results showed significant difference in head lice infestation and sex, school grade, family size, father education, and type of house ($P < 0.05$). Pediculosis is a public health problem in many parts of the world, and due to the higher prevalence of pediculosis in crowded families, family by lower levels of father's education and socioeconomic status in our study and rural area, it is necessary to give health education for families to prevent of pediculosis in this area.

Key words: Head Lice, Infestation, Associated Factors.

Introduction

Head lice (*Pediculuscapitis* De Geer) are globally prevalent human parasites that cause considerable distress to affected children and their families. In some developed countries, head lice infestations also consume important resources from public health institutions(1). The primary route of head lice transmission is head-to-head contact (To efficiently decrease the prevalence of head lice in a community, all persons or families at risk of being infested should be engaged. If some groups are disinterested in head lice detection and avoid taking actions when infested, the effect of actions taken by others will be reduced as long as there is contact between the groups. Elementary school children generally show the highest prevalence of head lice (2), and since students are intermingled in classes and have high contact rates, transmission of head lice occurs frequently. Therefore, it is particularly important to provide general knowledge and teach effective routines regarding head lice management to households of school-age children in order to combat head lice in a community(3, 4).

Studies of head lice have primarily focused on aspects of insect biology, epidemiology and efficacy of pediculicides(5). This is important for quantifying and understanding the character of head lice infestation, as well as for developing effective treatments. However, to reduce the prevalence of head lice, it is also important to note what people in a community actually do when they face pediculosis. Such information is remarkably scarce in the literature, though some exceptions exist (6)

The protein present in the saliva of the louse enters into the body by the bite of louse. It causes fatigue and sensitivity. The frequent bite may cause acute allergy such as, itching. If the faces of the louse inhaled causes symptom similar to the hay fever.

The second infection may occur by crushing of the bite site, which leads to the skin swelling, impetigo and the other similar conditions that results in depression, mental problem, insomnia, and education problem(7). The main effective way in effect against the disease is using the shampoo containing pesticides, such as, lindan and permethrin, public education where the prevalence rate is high and also improvement of the hygienic condition (8).

Because of head louse feeding of blood it leads to anemia and in the scratch sites can lead to secondary infection (9).

Head louse is one of the health problems in many parts of the world (10). Head louse prevalence in school-age children is more common for example, 27% of urban primary schools in Iranshahr area (Southeast of Iran) were found

infested(11). Hodjati et al studied the head lice infestation in school children of Tabriz City and the infestation rate was 3.64% (12). The prevalence of head lice was 1% in Fars (13), and 1.3% in Bahar(14).

Some factors are effective for the head lice prevalence that related to the host such as: sex, age group, race, type of hair and in recently years resistance to insecticides have contributed to the increase of head lice prevalence(15). This study was conducted to survey the prevalence of head lice infestation rate and some risk factors in high school student, in Zabol, Iran.

Materials and methods

Students from 6 high schools (first through fourth. The schools were selected by stratified sampling to represent four geographic and socioeconomic regions in Zabol. Schools were randomly selected within each of these regions. Caretakers approved the participation of elementary school students through written consent. All approved the use of data from their respective sources for the study. A team including health workers of study area, school health nurses and a medical entomologist, skilled in the detection of head lice examined the pupils' hair and scalps for lice. Screening was carried by visual inspection of the head and scalp under the light of a reading lamp about 3-5 min. Pupils suspected of having lice were subjected to comb with a fine-toothed comb for about 7 minutes over a white paper of 60×75 cm size. The removed lice were observed, collected by sellotape. Pupils, whose hair had at least one of the developing stages of parasite including only nits located ¼ inch from the scalp were considered positive (11). Also we used a standard questionnaire to record information about sex, school grade, family size, parent's education, type of house (muddy, woody, brick built), hair washing (per week), availability. The chi-square test (SPSS software, variables. For all statistical analyses, a significance level of $P < 0.05$ was adopted. Version 11.5) was used to compare categorical variables.

Results

The total prevalence of head lice infestation was 4.8%. The difference between lice prevalence was significant regarding the gender, which was higher in girls (6.66%) than in boys (2%) ($P < 0.05$). shows the prevalence of head lice infestation in primary school pupils, which was stratified by social factors. The prevalence of head lice infestation by frequency of hair washing was 8.66%, and 3.7%, for once in two week, once a week respectively and twice or more a week had not any lice. The difference between twice or more of hair washing in a week and infestation rate was highly significant ($P <$

0.05) in comparison to once in two week and once in a week. All of the head lice infestations were in family, which had more than 3 members. The prevalence of head lice infestation was significantly according to school grade ($P < 0.05$). The most frequent group was first grade (13.54%). The prevalence of head lice in relation to type of house was statistically significant ($P < 0.005$) and in muddy house was 10.1 %, woody house 5.73 and the pupils who lived in brick built homes had not any infestation. The results of this survey showed that infestation rate in the pupils who did not use of comb were 6.81%, once use in day 5.94%, and twice use were 2.85%. There was no statistical difference found between the number use of comp and infestation rate. The prevalence of head lice infestation by parents' literacy is presented in Table 1. This results show that there was a negative correlation between father's education and infestation rate ($P < 0.05$). There was not any significant difference between mother's education and infestation.

Table 1- Prevalence of the head lice infestation in primary school pupils according to parents' literacy in zabol , Iran

Characteristics	No. of Examination	No. of infestations	Prevalence (%)
Father's education			
Uneducated	65	8	12.3
Primary	313	14	4.47
guidance school	115	2	1.73
High school and upper	7	0	0
Mother's education			
Uneducated	364	22	6.04
Primary	104	2	1.92
guidance school	31	0	0
High school and upper	1	0	0

Discussion

The majority of the participants followed many of the head lice recommendations provided by the health authorities in Zabol. They used a lice comb when checking for head lice, informed others of infestations in their own households and treated active infestations using the recommended pediculicides, often in combination with a lice comb. However, most students were checked for head lice less frequently than the recommended monthly inspections, and such infrequent examinations may give too long infectious periods to prevent the spread of head lice among students. We were pleased to see that few students used pediculicides preventively, and the direct costs associated with pediculosis were generally low. Still, the expense of pediculicides may be a limitation for some families, especially those suffering repeated infestations. Indirect costs seemed to pose a larger burden than direct costs, partly owing to the fact that one in three

children had remained home from school at least 1 day when infested. Furthermore, a majority of caretakers erroneously believed that unnecessary, time consuming and thorough house cleaning was necessary to fight pediculosis and that head lice spread easily through fomites. That head lice spread easily through fomites. All general results were consistent among the different periods investigated, and they also agree with the findings of Rukke et al. (2012) that investigated actions, costs and knowledge of head lice in five geographically separated areas of Zabol(16).

The prevalence rate from different parts of Iran, mostly in primary school pupils reported lower 1% in Fars (13), 1.3% in Hamedan(14), 3.64% in Tabriz (12), 3.8% in Kerman(17), 27% in Iranshahr (11) and 28.5% in Ardabil (18). Also infestation rate among school pupils in some parts of the world was 33% in Australia (3), 35% in Brazil (4). Almost in all this studies in Iran and other parts of the world, the prevalence of head lice infestation in female pupils was more than the prevalence of the infestation in male pupils. Difference in behavior patterns between boys and girls might have affected transmission rates and susceptibility to head lice infestation (14). We found that. capitis was more prevalent in crowded families, muddy house, family by lower levels of father's education and socioeconomic status, little frequency of hair washing in a week which are all associated with pediculosis(19) are more frequent in rural regions. Because this study was conducted in rural parts of Zabol City, these results were expected. We also surveyed the prevalence of head lice infestation by school grade and found that the prevalence in first grade was significantly frequent ($P < 0.05$). Edalatkah et al in Ardabil reported that infestation rate in younger group was more than older group, and this was similar to our study(18) Preventive use of pediculicides. Use of pediculicides without identifying the presence of head lice should be avoided(20). The rate of such preventive use was similar in our study to that reported in Rukke et al. (2012), but half of what was observed in an Australian study (21). The observed higher preventive pediculicide use among parents with foreign backgrounds might indicate a greater eagerness to treat.

Conclusion

The variables have played an important role in the prevalence of pediculosis, having health staff at schools, hygienic behaviors and health education, to control pediculosis.

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