Head louse (*Pediculus humanus capitis*) infestation in primary schoolchildren in rural areas of Paveh County, Kermanshah province

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ABSTRACT

Pediculosis capitis is a great health issue around the world. This study was conducted aimed to regulate the prevalence of head lice infestation in students and some associated factors in rural areas of Paveh County, Kermanshah province. This was a cross-sectional study that carried out in 5 villages of rural areas of Paveh County including Nouryab, Galal-e, Nejjar, Worrah and Daryan. Four hundred eighty five pupils include all female students in five studied villages were investigated. The results, were recorded in a questionnaire and analyzed by SPSS ver. 16. Totally, 85 (17.5%) of the examined girls were infested to pediculosis capitis. The children aged 10-11 years old had the highest (49.4%) infestation and children ≥ 12 years old had the least head louse infestation. There was a statistically significant association between head louse infestation and level of parents' schooling, frequency of hair washing and sharing of common comb ($p<0.05$). The results of the study indicated, the prevalence rate of head louse infestation in this region is high, so effective health training courses related to head louse infestation and its effects on health of the pupils and their families are suggested.

KEY WORDS: pediculosis capitis, head louse infestation, prevalence, Iran.

1. INTRODUCTION

Head louse, *Pediculus humanus capitis* (De Geer, 1778), is an obligate wingless insect that is transmitted in the closet contacts especially among children aged 5-13 years old (Sayyadi, 2014; Vahabi, 2012). Head lice are belonging to the biggest class of Animalia Kingdom. More than 80% of all animals are insects (Sayyad, 2016; Vahabi 2001; Vahabi, 2007). Head lice do not transmit any disease to human but it causes annoyance, irritation and sleepiness (Alempour Salemi, 2013). Pediculosis is one of the most common health problems in many parts of Iran (Shahraki, 2013; Rasolabadi, 2015). Some factors that may be increase head louse infestation are poor hygiene, socioeconomic status, lack of medical treatments (Koch, 2001; AL-Shawa, 2008). In a study in Hamadan near to Kermanshah, prevalence rate of pediculosis was 1.05% (Omidi, 2013). Studies by many researchers in Iran and other countries revealed that pediculosis capitis is a prevalent health problem, i.e., 33.7% in Australia (Speare, 1999), 35% in Brazil (Borges & Mendes, 2002), 48.7% in France (Courtaiade, 1993) and 49.7% in Ghana (Kwaku, 1982), 14.1% in Bayengan city (Sayyadi, 2014), less than 1% in Fars province (Davarpanah, 2009), 1.3% in Hamadan (Moradi, 2009), 3.64% in Tabriz (Hodjati, 2008), 3.8% in Kerman (Kamiabi, 2005), 27% in Iranshar (Alempour-Salemi, 2003), 28.5% in Ardebil (Edalatkhah, 2005), 1.12% in Sirjan (Yousefi, 2012) and 8% in Paveh city (Vahabi, 2013). The literature review regarding to pediculosis capititis in rural areas of Paveh showed, there are not any published data, so the present survey was conducted aimed to determine prevalence rate of head louse infestation in girl's schoolchildren in rural areas of Paveh County.

2. MATERIALS AND METHODS

This survey was a cross-sectional study that carried out in 5 villages of rural areas of Paveh county, Kermanshah province. The sample size was 485 (all girl pupils) schoolchildren from 5 villages of Paveh county including Nouryab, Galal-e, Nejjar, Worrah and Daryan. All of pupils investigated by survey of the entire head cautiously after parting the hair, special attention to the nape of the neck and behind the ears. If live lice, their eggs or their nymph was observed the child was considered as infested pupil. A standard questionnaire including: age, school grade, family size, parents' job, level of parents' education, having hygiene teacher, length of head hair, sharing common comb and frequency of washing head hairs was used. The collected data were analyzed using SPSS ver. 16.

3. RESULTS

During the present study, 485 girl schoolchildren of 5 villages in Paveh County were investigated. The mean age of the samples was 9.09±1.51 years old. 85 (17.5%) pupils were infested to pediculosis capitis. In grade 5 was observed the most prevalent rate of pediculosis (25.9%) and in grade I was observed the lowest infestation (12.9%). Children in age group of 10-11 years old had the most pediculosis and children ≥ 12 years old had the least

pediculosis. The most prevalent rate of infestation was perceived in the pupils that their fathers' job was private. There was relation between head louse infestation and level of father's education (p=0.01), mother's education (p=0.001), frequency of hair washing (p=0.04) and sharing common comb (p=0.02). There were no relation between head louse infestation and other variables of the study (p>0.05). (Tables.1, 2).

Table.1. Head louse infestation among primary girl schoolchildren relation to some socio-economic factors in rural areas of Paveh County, Kermanshah Province

Characteristics	No. of infested/ No.of Examined	Prevalence (%)	P.value
Family size			
2-4 persons	46/274	54.1	
5-6 persons	33/172	38.8	0.76
7 or more than 7 persons	6/39	7.1	
Total	85/485	100	
School grade			
I	11/101	12.9	
II	14/87	16.5	
III	18/92	21.2	0.3
IV	20/100	23.5	
V	22/105	25.9	
Total	85/485	100	
Age			
6-7	9/91	10.6	
8-9	33/180	38.8	0.1
10-11	42/204	49.4	
≥12	1/10	1.2	
Total	85/485	100	
Father's job			
Government	14/120	16.5	
Private	45/258	52.9	0.06
Labour	26/107	30.6	
Total	85/485	100	
Father's education			
Illiterate	18/62	21.2	
Initial education	31/153	36.5	
Guidance school	14/88	16.5	0.01
High school	16/101	18.8	
University education	6/81	7	
Total	85/485	100	
Mother's job			
Employed	9/46	10.6	
Housewife	76/439	89.4	0.4
Total	85/485	100	
Mother's education			
Illiterate	31/102	36.5	
Initial education	35/191	41.2	
Guidance school	9/79	10.6	0.001
High school	6/78	7	
University education	4/35	4.7	
Total	85/485	100	

Table.2. Prevalence rate of head louse infestation in relation to personal hygiene in primary girl schoolchildren, rural areas of Paveh County, Kermanshah Province

Characteristics	No. of infested/ No. of Examined	Prevalence (%)	P.value
Frequency of hair washing			
Once a week	41/175	48.2	
Twice a week	31/215	36.5	0.04
Three or more a week	13/95	15.3	
Total	85/485	100	

Length of hair			
Short	25/175	29.4	
Medium	38/180	44.7	0.2
Long	22/130	25.9	
Total	85/485	100	
Having hygiene teacher			
Yes	49/260	57.6	0.2
No	36/225	42.4	
Total	85/485	100	
Sharing common comb			
Yes	38/166	44.7	0.02
No	47/319	55.3	
Total	85/485	100	

DISCUSSION

The total rate of head lice infestation was 17.5%. In a study in Fars province 0.35% of the examined pupils were infested to pediculosis (Davarpanah, 2009). In another study in Sanandaj city the prevalence rate was 4.7% (Vahabi, 2012). This rate of infestation was 1.12% in rural areas of Sirjan county (Yousefi, 2012), 15.8% in rural areas of Ravansar county (Sayyadi, 2013), 13.5% in girl schoolchildren of Hamedan (Nazari and Saidijam, 2007), 4% in Urmia (Hazrati Tappeh, 2012), 23.9% in Qeshm (Soleimani, 2007), 1.3% in Bahar city (Moradi, 2009) and 27% in Iranshar (Alempour-Salemi, 2003). The findings of the study is comparable to results of Nazari and Saidijam in Hamadan (2007), Sayyadi, in Ravansar county (2013) but is different from results of Hazrati Tappeh, in Urmia (2012), rural areas of Sirjan (Yousefi, 2012), Sanandaj city (Vahabi, 2012), Paveh city (Vahabi, 2013).

The highest infestation in the study found in grade five and this can be attributed to the fact, they wash their hairs themselves and their mothers don't pay attention to their hygiene. The findings of this survey showed that some variables such as parents' education, frequency of hair washing, sharing common comb, family size and income of families are very important regarding to reduction or elimination of head louse infestation.

4. CONCLUSION

The results of this survey and another researches in Iran and foreign countries revealed that head louse infestation is a worldly health problem and has different prevalence rates regionally but it remains as a considerable pediatric problem. The health systems can have important rules regarding to elimination of this problem. The effective health training courses related to head louse infestation and its impact on the health of children and their families can be effective to eliminate pediculosis.

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REFERENCES

Alempour-Salemi J, Shayeghi M, Zeraati H, Akbarzadeh K, Basseri H, Ebrahimi B, Rafinejad J, Some Aspects of Head Lice Infestation in Iranshahr Area (Southeast of Iran), Iranian J of Pub Health, 32 (3), 2003, 60–63.

AL-Shawa RM, Pediculus capitis infestation according to sex and social factors in Gaza Governorate, The Islamic University Journal (Series of Natural Studies and Engineering), 16 (1), 2008, 75-83.

Borges R, Mendes J, Epidemiological aspects of head lice in children attending day care centres, urben and rural schools in uberlandia, central Brazil, Mem Inst Oswaldo Cruz, Rio de Janeiro, 97 (2), 2002, 189–192.

Courtaiade C, Labrieze C, Fontan I, Taieb A, Maleville J. Pediculosis capitis: a questioner survey in 4 schools of the Bordeux Academy 1990-1991, Ann Dermatol Venereol, 120, 1993, 363–368.

Davarpanah MA, Mehrabani D, Khademolhosseini F, Mokhtari A, Bakhtiari H, Neirami R, The prevalence of Pediculus capitis among School Children in Fars Province, Southern Iran, Iranian J Parasitol, 4 (2), 2009, 48–53.

Edalatkhah H, Arshi S, Sadeghi H, Sepehram V, Prevalence of Pediculus capitis in school children in Ardebil province (in Persian), J. Ardebil Univ. Med. Sci, 6, 2005, 36–45.

Hazrati Tappeh K, Chavshin AR, Mohammadzadeh Hajipirloo H, Khashaveh S, Hanifian H, Bozorgomid A, Mohammadi M, Jabbari Gharabag D, Azizi H, Pediculosis capitis among Primary School Children and Related Risk Factors in Urmia, the Main City of West Azarbaijan, Iran, J Arthropod-Borne Dis, 6 (1), 2012, 79–85.

Hodjati MH, Mousavi N, Mousavi M, Head lice infestation in school children of a low socio economy area of Tabriz city, Iran, African J Biotech, 7, 2008, 2292-2294.

Kamiabi F & Nakhaei FH, Prevalence of pediculosis capitis and determination of risk factors in primary school children in Kerman, Eastern Mediterranean Health Journal, 11, 2005, 988-992.

Koch T, Brown M, Selim P & Isam C, Towards the eradication of head lice: Literature review and research egenda, Journal of Clinical Nursing, 10, 2001, 364-371.

Kwaku-Kpikpi JE, The incidence of head louse (*Pediculus humanus capitis*) among pupils of two schools in Accra, Trans R Soc Trop Med Hyg, 76, 1982, 378–381.

Moradi AR, Zahirnia AH, Alipour AM, Eskandari Z, The Prevalence of Pediculosis capitis in Primary School Students in Bahar, Hamadan Province, Iran, J Res Health Sci, 9 (1), 2009, 45-49.

Nazari M, Saidijam M Pediculusis Capitis infestation according to sex and social factors in Hamedan-Iran, Pakistan Journal of Biological Sciences, 10 (19), 2007, 3473-3475.

Omidi A, Khodaveisi M, Moghimbeigi A, Mohammadi N, Amini R, Pediculosis Capitis and Relevant Factors in Secondary School Students of Hamadan, West of Iran, J Res Health Sci, 13 (2), 2013, 176-180.

Rasolabadi M, Khaledi S, Khayati F, Kalhor M.M, Penjvini S & Gharib A, Scientific Production Of Medical Universities In The West Of Iran: A Scientometric Analysis, Acta Informatica Medica, 23, 2015, 206-209.

Sayyad S, Vahabi A, Vahabi B, Sayyadi M, Haji Sahne S, Investigation of bacteriological infections of the American Cockroaches in Paveh city, Kermanshah Province, Mater Sociomed, 28 (1), 2016, 17-20.

Sayyadi M, Sayyad S, and Vahabi A, Pediculosis Capitis, a Review Article, Life Sci J, 11 (3s), 2014, 26-30.

Sayyadi M, Vahabi A, Sayyad S, An epidemiological survey of head louse infestation among primary schoolchildren in rural areas of Ravansar County, west of Iran, Life Sci J, 10 (12s), 2013, 869-872.

Sayyadi M, Vahabi A, Sayyad S, Haji Sahne Sh, Prevalence of head louse (*Pediculus humanus capitis*) infestation and associated factors among primary schoolchildren in Bayengan City, west of Iran, Life Sci J, 11 (3s), 2014, 19-22.

Shahraki GH, Fararooie M, Karimi AA, Controlling head lice in Iranian primary schools for girls, Asian Biomedicine, 7 (2), 2013, 281-285.

Soleimani M, Zare SH, Hanafi-Bojd AA, Amir-Haidarshah M, The Epidemiological Aspect of Pediculusis in primary school of Qeshm, South of Iran, J.Med. Sci, 7 (2), 2007, 299-302.

Speare R, Buettner PG, Head lice in pupils of a primary school in Australia and implications for control, Int J Dermatol, 38, 1999, 285–290.

Vahabi A, Determination of fauna of Anopheles and their distribution throughout Kurdistan province in 2001, Scientific journal of Kurdistan University of Medical Sciences, 6 (1), 2001, 36-39.

Vahabi A, Rafinejad J, Mohammadi P, Biglarian F, Regional evaluation of bacterial contamination in hospital environment Cockroaches, Iran. J. Environ. Health. Sci. Eng, 4 (1), 2007, 57-60.

Vahabi A, Shemshad K, Sayyadi M, Biglarian A, Vahabi B, Sayyad S, Shemshad M and Rafinejad J, Prevalence and risk factors of Pediculus (humanus) capitis (Anoplura: Pediculidae), in primary schools in Sanandaj City, Kurdistan Province, Iran, Tropical Biomedicine, 29 (2), 2012, 207–211.

Vahabi B, Vahabi A, Gharib A, Sayyadi M, Sayyad S, Prevalence of head louse infestations and factors affecting the rate of infestation among primary schoolchildren in Paveh City, Kermanshah Province, Iran in the years 2009 to 2010, Life Sci J, 10 (12s), 2013, 360-364.

Yousefi S, Shamsipoor F, Salim Abadi Y, Epidemiological study of head louse (*Pediculus humanus capitis*) infestation among primary school students in rural areas of Sirjan County, South of Iran, Thrita J Med Sci, 1 (2), 2012, 53-56.