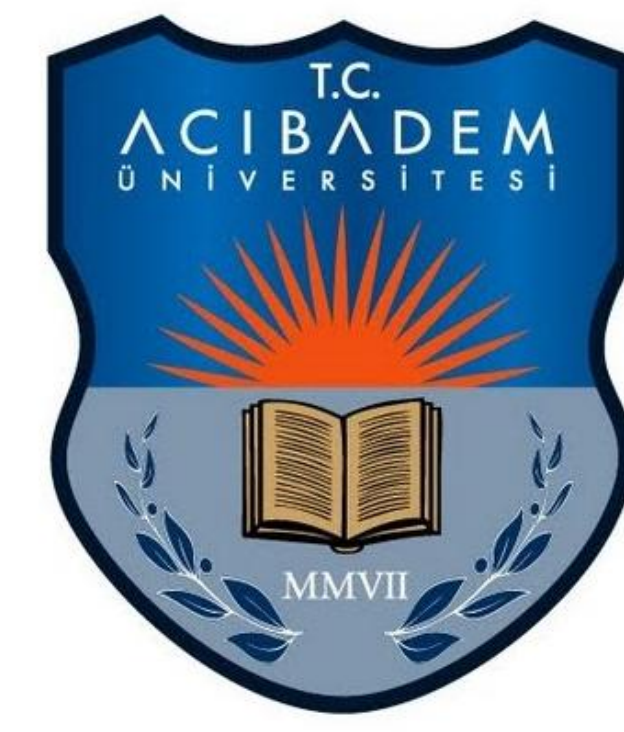


# ASSESSMENT OF BOTH THE PREVALENCE OF HEAD LICE (*PEDICULUS HUMANUS CAPITIS*) AND PARENT'S ATTITUDES TOWARDS ITS MANAGEMENT: A SCHOOL BASED EPIDEMIOLOGICAL STUDY IN ISTANBUL, TURKEY



Özgür Kurt<sup>1</sup>, İnci Timur<sup>2</sup>, Ezgi Açma<sup>2</sup>, Duygu Şimşekli<sup>2</sup>, Barış Gülerman<sup>2</sup>

<sup>1</sup>Acibadem University Faculty of Medicine Dept. of Medical Microbiology, <sup>2</sup>Acibadem University Faculty of Medicine, 3<sup>rd</sup> Year Student



## ABSTRACT

**Introduction:** Head lice infestation caused by *Pediculus capitis* has been a public health problem worldwide.

✓ The aim of this study was to investigate prevalence of *Pediculus capitis* infestation and the factors that may be related to the prevalence of the infestation in two primary schools located in an area having a low socio-economic status in Ataşehir/İSTANBUL.

✓ In addition, we aimed to reveal the parents' attitudes and previous experiences on head lice infestation.

**Methods:** A total of 340 primary school children aged between 5 and 10 years, were examined for head lice infestation individually with specialized combs.

➤ In addition, a questionnaire designed for the present study containing questions about age, gender, the level of education of his/her parents, income of the household, the number of the children in the family and in the same room, the frequency of baths given per week, any contact with animals, any previous head lice infestation experiences and general statements about head lice with true/false options to estimate the knowledge level of the parents was distributed to each student in the school up to 14 years of age.

✓ An approved anti-lice medication was given free to every infested student after this study for treatment.

**Results:** The number of boys were slightly higher than girls in the study group (164 girls vs. 176 boys).

✓ Thirty two of 340 children (9.41%) were found to be infested with head lice; 7 had adult lice, while the remaining 25 had moderate to dense infestation with *P. capitis* eggs.

✓ Boys had lower infestation rates than girls (2.8% vs. 16.4%).

✓ A total of 951 questionnaires were submitted by parents of children up to 14 years old in the study.

✓ Assessment of the parents' replies revealed a negative correlation between the frequency of bathing per week and the presence of head lice infestation.

✓ There was no significant association between head lice infestation and the mother's education, the father's education, the economic status, the number of children in the family, the number of children staying in the same room or contact with animals ( $p > 0.05$ ).

**Conclusions:** It is obvious that head lice infestation is a significant public health problem in students up to 10 years of age even in the city center of Istanbul

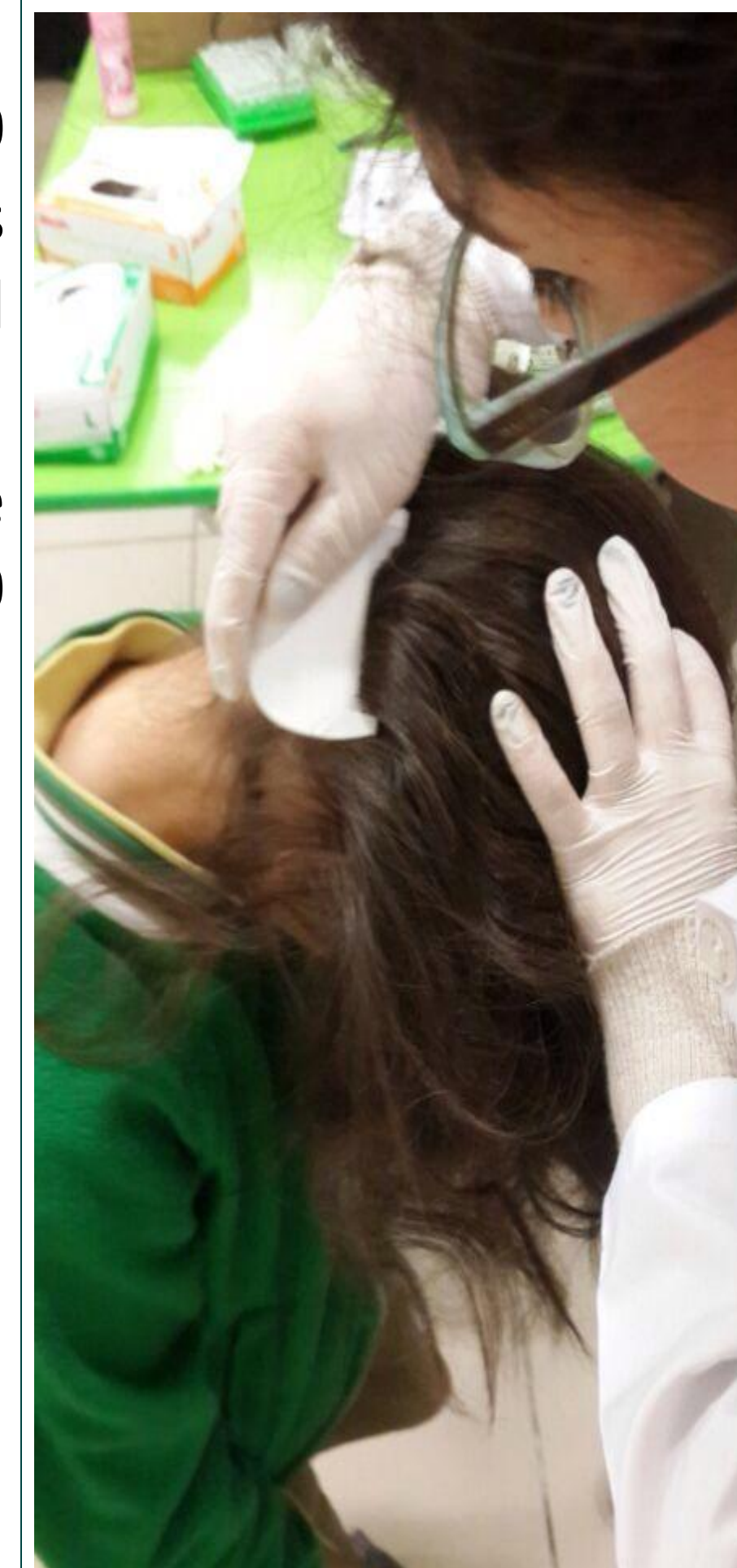
✓ To achieve a lower prevalence, a joint program including medical doctors, teachers, school administration and parents should be followed to treat and protect the school children from infestation, especially in regions with lower socio-economic status.

## INTRODUCTION

- *Pediculus capitis* is one of the oldest human parasites, and is a worldwide public health problem that affects mostly the school-aged children.
- Despite lack of concrete data about its vectorship for serious bacterial or viral infections, *P. capitis* may irritate school children through intense itching and cause loss of motivation, irritability and act as a social stigma for families.
- Previous studies indicated that it as a prevalent infection among school children in Turkey, with infestation rates ranging between 1.3-27.4.
- The aim of the present study is to investigate the prevalence of *P. capitis* infestation in two primary schools in Istanbul city centre and assess parent's attitudes and previous experiences on head lice infestation using a questionnaire.

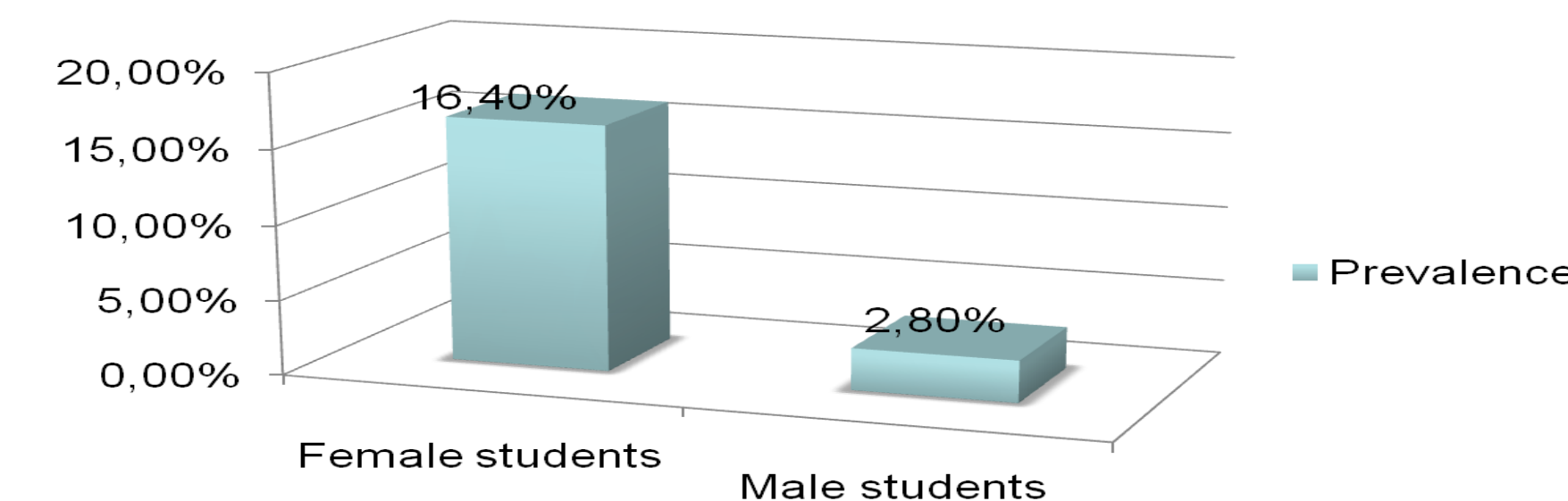
## MATERIALS AND METHODS

- A total of 340 primary school children (164 girls and 176 boys) aged 5-10 years in two different primary schools were examined with specially-designed anti-lice combs.
- A questionnaire designed for the present study was distributed to 1250 students in the school.
- An approved anti-lice medication was given free to every infested student after this study for treatment, under the supervision of their teachers and parents.
- The statistical analyses of the data were done by SPSS® program by using chi-square test with a significance cut-off value of 0.05.



## RESULTS

- Totally, 32 of 340 children (9.41%) were found to be infested with head lice; 7 had adults, while 25 had eggs on their hair.
- Infestation rate of girls were almost 5 times higher than the boys.



- A total of 951 parents submitted the questionnaires back with answers.

## RESULTS

- ACCORDING TO THE ANSWERS IN THE QUESTIONNAIRE:

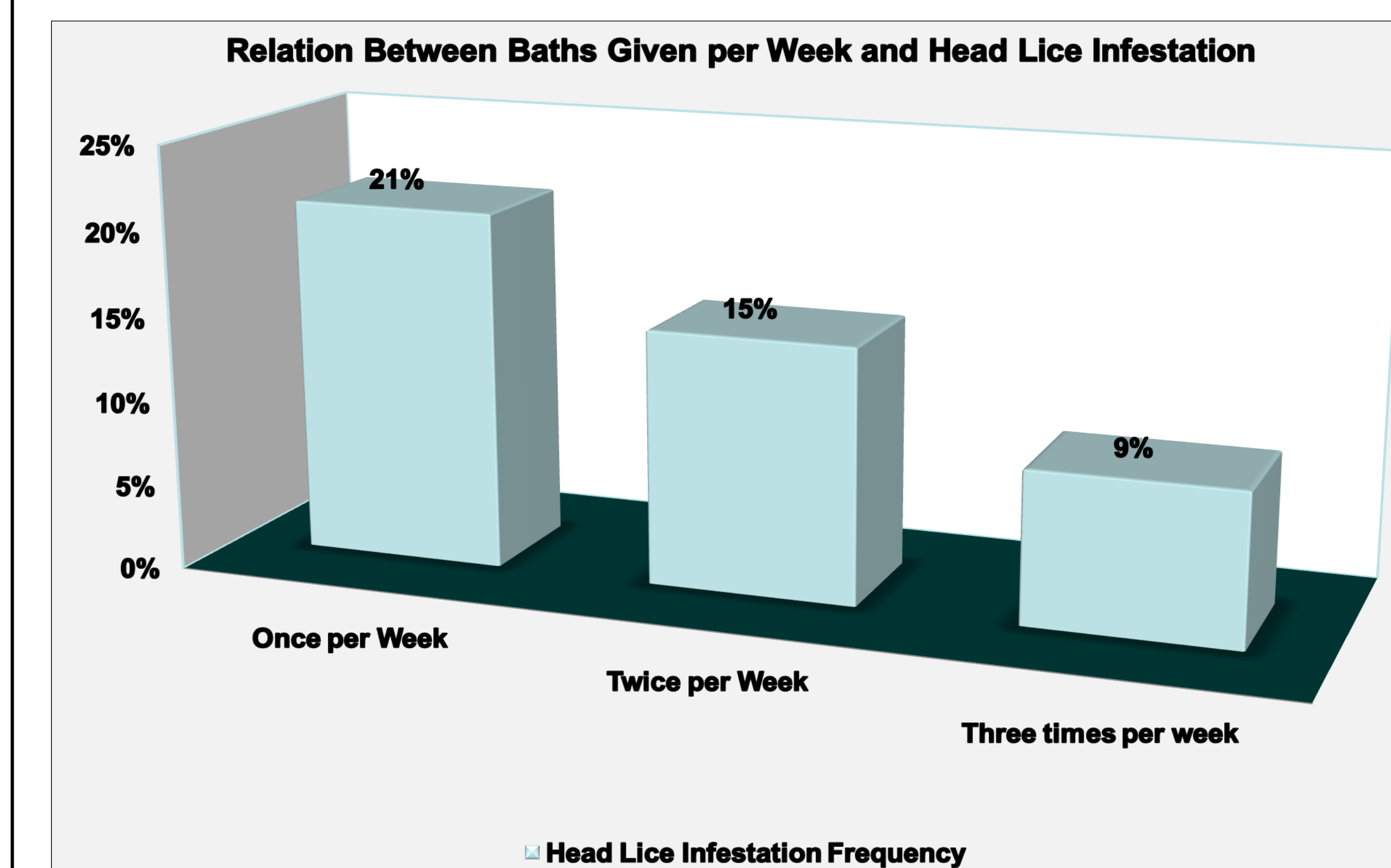
*(The results obtained from the answers of the parents to the questionnaire are independent from the results in head lice examination)*

- There was no significant association between head lice infestation and the following parameters:

- the mother's education, the father's education
- the economic status
- the number of children in the family
- the number of children staying in the same room
- contact with animals ( $p > 0.05$ ).

Variable	Number of Parents	Percentage	Did your child experienced head lice before?		P value
			YES	Percentage %	
<b>Education of Father</b>					
Uneducated	10	1.1	3	30	0.204
Primary School Secondary	480	54.2	73	15.2	
School	203	22.9	40	19.7	
High School University	162	18.3	21	13	
	30	3.4	7	23.3	
<b>Education of Mother</b>					
Uneducated	25	2.9	3	12	0.270
Primary School Secondary	557	63.5	87	15.6	
School	157	17.9	25	15.9	
High School University	126	14.4	29	23	
	12	1.4	1	8.3	
<b>Level of Income (Monthly)</b>					
>1000 TL	524	60	93	17.7	0.358
1000-3000 TL	308	35.3	49	15.9	
3000-5000 TL	31	3.6	2	6.5	
5000+ TL	10	1.1	1	10	
<b>Pet</b>					
Yes	105	12.4	19	18.1	0.371
No	739	87.6	109	14.7	

- There was a negative correlation between the frequency of baths given per week and head lice infestation. ( $p = 0.013$ )



## RESULTS

- ACCORDING TO TRUE/FALSE QUESTIONS:

- 71.7% of the parents considered head lice infestation in close relationship with poor personal hygiene.
- 71.3% => considered washing children's hair with anti-lice shampoo once a week an effective prevention against head lice.
- 8.8% => considered burning oil/kerosene as the choice of treatment in case of detecting head lice infestation.
- 7.9% => agreed to use the choice of treatment that their neighbor recommends.
- 6.8% => reported regular combing is an adequate treatment to remove head lice.

*The anti-lice medication given after the combing does not use chemical neuro-toxic pesticides to poison head lice and their eggs and kills them by suffocating them. It is a physical treatment, it does not have any systemic effect and it is safe.*

## CONCLUSIONS

- The results of the present study showed that the head lice infestation constituted a significant health problem in younger students up to 10 years of age in primary schools of Ataşehir/İSTANBUL, which is a central location in the city.
- Girls are under more risk for head lice infestation due to their long hair. On the other hand, our results also show that the higher is the frequency of bathing (hygiene status), the less is the prevalence of pediculosis.
- *To achieve a lower prevalence, a joint program including medical doctors, teachers, school administration and parents should be followed to treat and protect the school children from infestation, especially in regions with lower socio-economic status.*

## REFERENCES

1. İlhan F, Budak S. İzmir Karşıyaka'da bir ortaokul ve dört ilkokulun öğrencileri arasında *Pediculus humanus capitis*'in yaygınlığının araştırılması ve iki yıl önce yapılan tarama sonuçları ile karşılaştırılması. *Türk Parazitoloji Dergisi* 1994; 18 (4): 485-91.
2. Özcan K: Bitler ve parazitolojik önemi. In, Özcel MA, Daldal N (Eds): *Parazitoloji'de Arthropod Hastalıkları ve Vektörler*. Türkiye Parazitoloji Derneği Yay. No: 13, s. 235-264, Ege Üniversitesi Basımevi, İzmir. 1997.
3. Humphreys, Elizabeth H., Sarah Janssen, Ann Heil, Patricia Hiatt, Gina Solomon, and Bauer E, Jahnke C, Feldmeier H. Seasonal fluctuations of head lice infestation in Germany. *Parasitol Res* (2009) 104:677-681.
4. Gratz, N. G. (1997). Human lice: Their prevalence, control, and resistance to insecticides. A review 1985-1997. World Health Organization/Division of Tropical Diseases/WHO Pesticide Evaluation Scheme/97.8. Geneva: World Health Organization.
5. Heukelbach J, Wilcke T, Winter B, Feldmeier H. Epidemiology and morbidity of scabies and pediculosis capitis in resource-poor communities in Brazil. *Br J Dermatol* 2005, 153(1):150-156.
6. Nutanson I, Steen CJ, Schwartz RA, Janniger CK, 2008. *Pediculosis capitis: an update*. *Acta Dermatoven APA Vol* 17, 147-158.