University of Thi-Qar Journal of agricultural research

Thi-Qar Journal of agricultural research

ISSN Onlin:2708 -9347, ISSN Print: 2708 -9339 Volume 15, Issue 1 (2026)

https://iasj.rdd.edu.iq/journals/journal/issue/20226 *https://doi.org/10.54174/utjagr.v13ii 27.*

A Study of Pediculosis Capitis Infestation (Head Lice) among School Girl's Students in Al-Fuhud District of Thi-Qar Province in Iraq

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I. Abstract

One of the most prevalent parasite illnesses in the globe, head lice cause health issues in schools and a great deal of concern in parents of school-age children. The infestation peaks between the ages of 6 and 12.

The current study included conducting a visual examination for the detection of head lice on 709 female students from two primary schools in different areas at the economic and social level in Al-Fuhud district / Thi-Qar province. The current study showed a total infection number of 48 in all of the two schools.

The results showed differences in head lice infestation according to factors such as age and social and familial factors for the same school, with similar results when comparing both schools. The number of infections in Al-Mukhtar Al-Thaqafi School was 25 and the number of infections in Imam Al-Muttaqin School was 23.

Improving living standards, awareness and education, and the use of appropriate treatment methods can significantly reduce lice infestation.

Key words : *pediculosis, primary school girl's, infestation.*

II. Introduction

A lice infestation on the human body is known as pediculosis. Lice are obligatory ectoparasites that live on the bodies of both people and animals. They belong to the order Phthiraptera. Human infestations affect the torso, pubic areas, and the head (the most prevalent kind) [(1)]. Pediculus humanus capitis (Phthiraptera: Pediculidae) is the causative agent of pediculosis, commonly referred to as head lice infestation. Pediculosis, sometimes known as lice infestation, is a worldwide health issue that is far more common in developing nations. Because lice cannot hop or fly from one host to another, head lice infestations continue at various ages despite preventive measures and are typically disseminated by close person-to-person contact in densely populated places, as shown in figures (1,2) [(2)]. They are infrequently spread by personal items such combs, caps, scarves, underwear, and towels in addition to direct contact [(3)]. Although they may make individuals feel uncomfortable and ashamed, head and pubic lice do not spread any diseases. Only human diseases like trench fever, typhoid fever, and relapsing fever are spread by body lice [(4)]. Recurrences following therapy and an increase in pediculosis cases have been reported on multiple occasions [(5)]. Since 2014, pediculosis has been treated with permethrin 1%, lindane 1% shampoo, and dimethicone lotion. The frequency of Pediculus capitis in elementary school-aged children worldwide has been the subject of numerous research to date. Lice infection is significantly influenced by social, cultural, and economic status [(6)]. Compared to adults, children are more likely to be infested [(7)]. Children aged 5 to 11 were found to have the most infestation. Both white people and girls are more likely to experience it than black people [(8)].

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One of the most prevalent parasite infections in the world, head lice infestation poses a major health risk to many communities, particularly schoolchildren [9]. It could also have social and psychological repercussions. Students may fail academically as a result of this condition [10]. Head lice infestation is widespread throughout the world and has been identified as a serious health issue in both wealthy and industrialized nations as well as impoverished ones. This parasite infects more than 12 million Americans annually [11]. Study conducted in many regions of the world has revealed varying rates of head lice in youngsters. According to estimates, the rate of contamination is 8.9% in Belgium, 13.3% in Yemen, and 16.59% in India. The percentage of pollution in Iran has been the subject of several published reports. According to reports, it is 0.47% in Aran and Bidgol, 2.2% in Babol, 4.5% in Gilan, 6.7% in Hamedan, 7.7% in Sanandaj, and 13.3% in Qom [12]. The study's objectives are to determine the current prevalence of pediculosis capitis, or head lice infestation, among schoolgirls and the factors that are linked to it in the province of Thi-Qar.

Figure (1) : explain head lice [2]

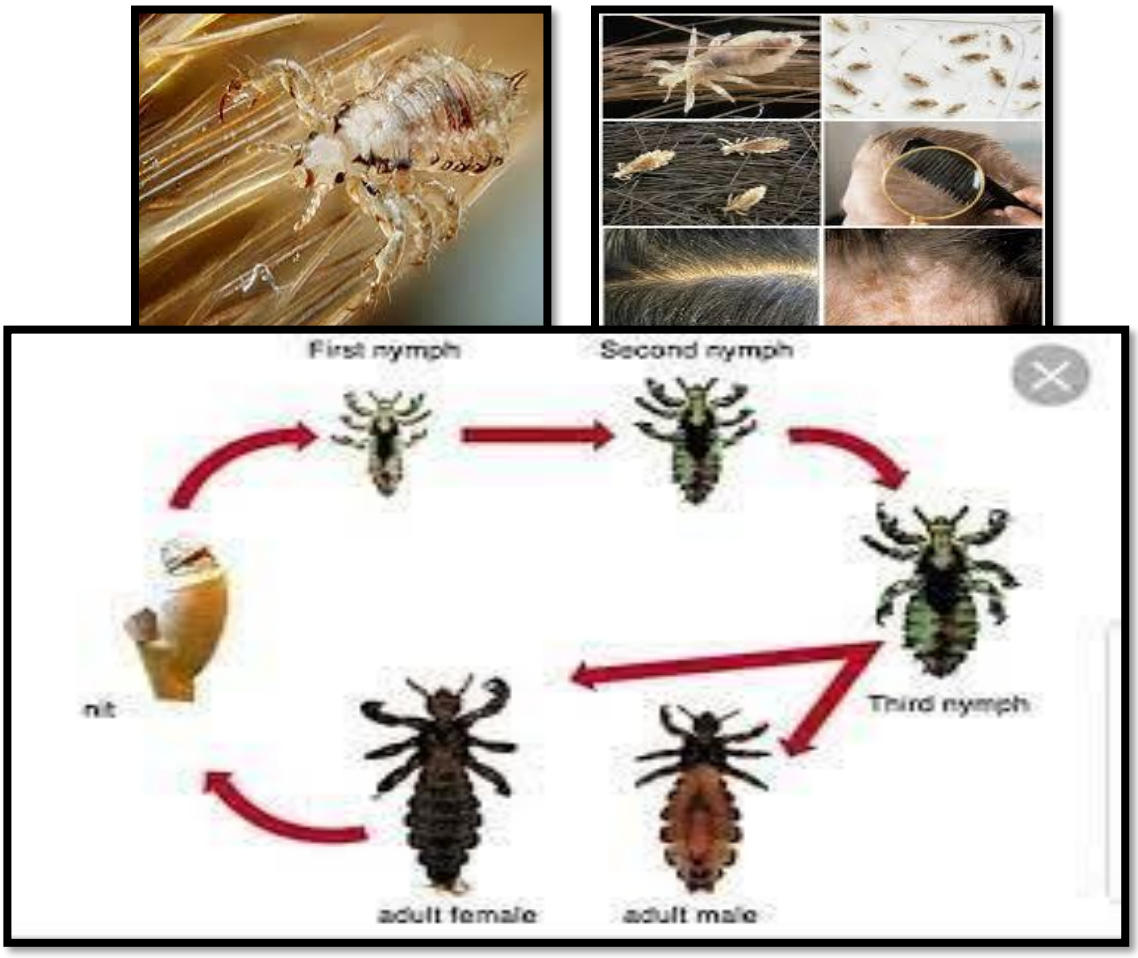

Figure (2) : explain life cycle head lice [2]

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Classification

Kingdom: Anemalia

Phylum: Arthrapoda

Subphylum: Mandibulata

Class: Insecta (Hexopoda)

Sub Class: Pterygota

Division: Exopterygota

Order: Anoplerura

Family: Pediculidae

Genus: Pediculus

Species: P. hum anus

Subspecies: P.h.capiti (Ernst Haeckel 1986)

III. Materials and Methods

Sample Collection

The study was conducted to determine the prevalence of head lice among two students from a primary school in areas of the city of Dhi Qar (Al-Fuhud) that varied in social and economic status after the school administration gave permission to conduct the study and the researcher obtained the necessary authorization to collaborate with the scientists when entering the selected schools. There were 688 female students in the study sample.

For female pupils aged 6 to 12, a direct external field assessment was performed on their heads. Each student was interviewed in person, and a questionnaire containing personal information such as name, age, gender, mother's level of education, and hair type and nature was completed and recorded. They looked at the scalp. The examination was conducted with the unaided eye, with a magnifying lens employed where necessary, with a focus on the occiput and behind the ears.

The presence of the adult bug or one of its stages (egg, nymph) indicates the presence of an infestation. Female hair length is also separated into two categories: There are two types of hair texture: short hair that falls to the shoulders and long hair that reaches past them. The two components of hair density—thick and thin—were also separated, and percentages were used to compare the aforementioned indications.

Study materials

Alcohol, gloves and coat

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Sstatistical Analysis

The Chi-square test was used to assess the current study's findings using the SPSS statistical analysis software version 26.

IV. Results and Dissection

The schools under study in Al-Fuhud district were visited to determine the number of cases of head lice infestation and the percentage among female students from first to sixth class, numbering 709. The results appeared as shown in the tables below.

The total infection rate at Al-Mukhtar Al-Thaqafi girls' school was (5.88%), and the highest infection rate was in the age category of 8-9 years, (32.00%), followed by the age category of 6-7 years, (24.00%), but the lowest rate of infection was in the age category 11-12 years, (4.00%), as shown in Table (1).

Table (1): Shows the numbers of students, age group, and percentage of lice infection at Al-Mukhtar Al-Thaqafi girl's school.

Grade	Age group	Healthy		Patients	
		No.	%	No.	%
First	6-7	66	16.50	6	24.00
Second	7-8	53	13.25	3	12.00
Third	8-9	74	18.50	8	32.00
Fourth	9-10	61	15.25	4	16.00
Fifth	10-11	85	21.25	3	12.00
Sixth	11-12	61	15.25	1	4.00
Total		400	94.12	25	5.88
$CalX^2$= 13.4		$TabX^2$= 11.07		DF= 5	p. value 0.020*

The total infection rate for Imam Al-Mutaqeen school for girls was (8.10%), and the highest infection rate was in the age group of 8-9 years, (30.43%), followed by the age group 6-7, (26.09%), while the lowest infection rate were in the age groups 9-10 (8.70%) and 11-12 years which (8.70%) as shown in Table (2).

Table (2): Shows the number of students, age group, and percentage of lice infection for Imam Al-Muttaqeen girl's school

Grade	Age group	Healthy		Patients	
		No.	%	No.	%
First	6-7	42	16.09	6	26.09
Second	7-8	47	18.01	3	13.04
Third	8-9	45	17.24	7	30.43
Fourth	9-10	43	16.48	2	8.70
Fifth	10-11	41	15.71	3	13.04
Sixth	11-12	43	16.48	2	8.70
Total		261	91.90	23	8.10
$CalX^2$= 11.0		$TabX^2$= 11.07		DF= 5	p. value 0.051

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Head lice infections are widespread among kids in schools and other institutions worldwide, according to earlier studies. Students between the ages of 5 and 13 have the highest prevalence of head lice infection and girls are more likely than boys to have it. One of the suggested approaches to addressing issues like obesity and the use of tobacco, alcohol and other drugs are health education and awareness, which are crucial in addressing issues of this kind. The same approach may be used to address the lice problem in schools, and educators can act as change agents in relation to the infection and the issues it causes [13]. Additionally, study has demonstrated that lice were more common in schools that did not offer any kind of instruction on lice prevention and management.

The study noted that the number of lice infection in both schools is higher among female students whose mothers are unemployed, and that there is a difference in the infection rate among students according to the nature of the mother's work, as shown in Table (3).

Table (3): Shows the nature of the mother's work for Al-Mukhtar Al-Thaqafi School and Imam Al-Muttaqin school for girls

Imam Al-Muttaqin school (23)			Al-Mukhtar Al-Thaqafi School (25)		
%	No.	Mothers work nature	%	No.	Mothers work nature
39.2	9	Employed women	40	10	Employed women
60.8	14	Unemployed women	60	15	Unemployed women
CalX^2= 0.021 TabX^2= 3.84 DF= 1 p. value 0.885					

Table (4) shows the father's work for both schools. It was noted that is a difference in infections for both students whose parents are unemployed and employed, as the study showed the infection rates for female students whose parents are unemployed are higher than for female students whose parents are employed of Al-Mukhtar Al-Thaqafi School, while on the contrary, the percentage of infection was observed among female students whose parents are employed of Al-Mukhtar Al-Thaqafi School. A female student whose parents are employed is higher than parents unemployed for the Imam Al-Muttaqin School.

Table (4): Shows the father's work for teacher, Al-Mukhtar Al-Thaqafi, and the Imam Al-Muttaqin girl's school

Imam Al-Muttaqin school (23)			Al-Mukhtar Al-Thaqafi School (25)		
%	N	Father work nature	%	No.	Father work nature
69.56	16	Employed	48	12	Employed
30.44	7	Unemployed	52	13	Unemployed
CalX^2= 10.0 TabX^2= 3.84 DF= 1 p. value 0.002**					

One of the key determinants of pediculosis capitis prevalence is socioeconomic level, which includes the parents' jobs. The mother's occupation and lice infestation were found to be significantly correlated in this study. Students whose fathers worked for the government, however, differed significantly from those whose fathers were laborers. Better hygienic conditions in these families may have resulted from improved financial circumstances. The prevalence of head lice infestation in students and the jobs of their parents did not appear to be significantly correlated in certain study [14]. They concur with our study conducted at the Al-Mukhtar Al-Thaqafi School.

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The study also showed the number of infections is higher among female students with long hair in both schools, at a rate of (60%) for Al-Mukhtar Al-Thaqafi school and (69.5%) for Imam Al-Muttaqeen school, as shown in Table (5).

Table (5): Shows the nature of the type hair of Al-Mukhtar Al-Thaqafi school and Imam Al-Muttaqin girls' school

Imam Al-Muttaqin school (23)			Al-Mukhtar Al-Thaqafi School (25)		
%	No.	Hair type	%	No.	Hair type
69.6	16	Long and thick	60	15	Long and thick
30.4	7	Short	40	10	Short
CalX^2= 2.19 TabX^2= 3.84 DF= 1 p. value 0.138					

The high prevalence rate among girls and the facilitation of pediculosis infestation may be attributed to a number of factors, including having long hair, braiding hair, and gender-related behaviors like wearing scarves, which can cause late detection. Additionally, girls are more likely than boys to play in close proximity, especially head-to-head, because girls prefer long hair and boys are more likely to be cared for by their parents, especially in rural areas of our country. In this regard, some studies have only looked at girls [9].

The study noted infection rates among female students with families of less than 7 members were higher than with families of more than 7 for both schools, (72%) for Al-Mukhtar Al-Thaqafi school and (60.8%) for Imam Al-Muttaqeen school, Table (6).

Table (6): Shows the incidence of infection and the number of family members for Al-Mukhtar Al-Thaqafi school and Imam Al-Muttaqeen girls

Imam Al-Muttaqeen school (23)			Al-Mukhtar Al-Thaqafi school (25)		
%	No.	family members	%	No.	family members
39.1	9	7<family members	28	7	7<family members
60.9	14	7>family members	72	18	7>family members
CalX^2= 2.71 TabX^2= 3.84 DF= 1 p. value 0.099					

However, our study found no significant correlation between pupil infestation and family size in high-density areas, where poor personal hygiene is a major risk factor for pediculosis capitis [14]. Additionally, we discovered a high association between the number of children with head louse infestations and the number of individuals sharing the room. This is consistent with our study, which shows that a larger family increases the chance of infestation and the spread of lice. One of the reasons could be that children are more likely to be neglected when there are more family members because parental attention tends to be divided [15].

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V. Conclusion

The major findings of the present work are:

1. A significant difference has been shown in the age group in patients as compared to healthy group at Al-Mukhtar Al-Thaqafi girl's school.

2. A significant increase has been shown in the father's work for teacher, Al-Mukhtar Al-Thaqafi, and the Imam Al-Muttaqin girl's school**.**

I. Recommendations

1. Conduct studies on a larger scale and in a larger number of schools.
2. Be careful when examining students and wear gloves to avoid lice infection.
3. Raising the level of health and awareness among students in schools.
4. Increase supervision of schools with the highest incidence rates in an attempt to reduce the spread of head lice infection.
5. The necessity of carefully examining the scalp of schoolchildren at the beginning of the school year.
6. Do not share clothes and hairbrushes, such as hats and coats.

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