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Comparison of prevalence of head lice *Pediculus humanus capitis* among male and female students of some primary schools in Tikrit City

Alaa Emad Tawfeeq

Department of Biology, College of Education for women , Tikrit University , Tikrit , Iraq

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Corresponding Author:

Name: Alaa Emad Tawfeeq

E-mail: ae313454@gmail.com

Tel:

ABSTRACT

A study was conducted to evaluate the prevalence of *pediculus humanus capitis* (De Geer, 1767) among male and female students of five primary schools in Tikrit (Abu Musa Al-Ash'ari for Boys and Fara'a schools for girls in Al-Shuhada neighborhood, and Hawa for girls' school in Al-Qadisiyah / Al-Duibbat neighborhood, and a school Sincerely, first born for boys in Al-Asri neighborhood, and Madar mixed school in Shishen district).

The results showed prevalence of infection with parasite among the five school students, with a total injury rate of 21.9%, of which 13.8% for males and 80.11% for females. Consequently, the prevalence of parasite among students in 6-7 age group was higher than in rest of age groups, reaching 23.23% and lowest in 10-year age group and over, which reached 16.03%.

The study showed length and nature of hair (tribe or curly) in percentage of infection with parasite, as percentage of infection in females with short hair reached 12.14%, while weakness in females with long hair reached 23.12%, and percentage of injury among students of lower hair was 36.32% for those with Curly hair and 11.81% for tribute hair.

Introduction

Head lice in humans are an external parasitic insect that causes many diseases, a phenomenon that has long been noticeable [1,3]. It belongs to the rank of Anoplura pediculidae family [1,6]. Despite tremendous development that society enjoys in world, including developing countries, lice have been given less priority compared to comparison with more serious problems from endemic diseases [11] and with a lot of huge sums spent by parents and many difficult equipment and school authority, but problem of lice remained. And growing and hardly an area in science devoid of this problem as it is spread among families with a low standard of living and cultural and among families that have more than 4-5 children of the family [7,10].

The aim of study conducting this study is to clarify the status of infection with this insect in our society in Tikrit in Salah al-Din Governorate, in front of those working in field of public health, with aim of developing formulas to combat and eliminate it.

Materials and methods

This study was conducted to investigate spread of *pediculus humanus capitis* in city center of Tikrit for

a period offrom March to June 2013. The study was conducted in most widespread months of lice and in different schools in terms of social and economic level: (Hawa School for Girls and School Abu Musa Al-Ash'ari for boys and Al-Fara'a for girls in Al-Shuhada neighborhood, Al Madar mixed school in Shishen district and Mukhlis Mawlis first school for boys in Al-Asri neighborhood).

812male and female students were examined in all schools, which included many indicators, including (hair structure (simplified or curly), hair length (short or long), age, gender, social level of the father and mother and the economic situation. Focusing on the nape and behind the ear (lice focus on these areas).

Results and discussion

The results of this study indicated that a total infection rate of 19.21% of total 812 students. It was found that all schools covered were infected, but females recorded an infection rate more than males, and reason may be due to shaving hair (for males) continuously and highest percentage recorded with infection of head lice was in mixed orbit school

24.74% of total of 97 male and female students Table(1).

The reason for the spread of head lice among students may be due to crowding in one classroom. Schools are one of places where lice are more prevalent in addition to prisons [9]. With this ratio compared to many studies conducted in provinces, it is a low percentage compared to Baghdad Governorate, percentage was 42.2 % [12]. And province of Babel was 23.8% [7], while ratio is comparable to some schools in Turkia, reaching 16.5% [8]. These contrast ratios can be attributed to several reasons, including differences in social and economic levels as well as on health and personal level. Likewise, some studies may focus on poor areas with a low cultural level and an increase in population density, where in these areas less hygiene and the number of bathing times and mixing between segments of society makes treatment methods very difficult, as well as crowding in number of students in one class and participation of more than one student in one seat Lead to more head lice spread.

The results showed that head louse was not limited to females but not males, as it was found in both sexes. From total of 351 males, head lice were found at 18.80%, while out of a total of 461 females, head louse was found at 19.52% Table (1).

Through these results, we see that head louse is not closely associated with females, but males also have a large correlation in infection and transmission of this insect. However, females recorded higher than males, not by a large difference due to length and quality of

female hair, and males tend to shave their hair and the louse cannot stay in a place where it does not find warmth and moisture compared to what is available to them in long hair, and this is what current study showed Long hair recorded a significant difference with an infection rate of 23.12% and 12.14% for short hair Table (2). These results are consistent with many studies in Iraq, Turkey and Iran [12,13,15,17].

The study showed that intention and quality of hair also affected injury, as curly hair of females and males was highest compared to hairy hair Table (3). reason may be due to difficulty of cleaning and demobilization unlike hairy hair and results were different from what some researchers [2,6] found, that students with hair are most affected than people with curly hair.

As for age groups, it showed age groups 6-7 years are most prevalent category of head lice by 23.23%, and reason may be due to difficulty of controlling this category in terms of personal hygiene. The category (10 years and more) recorded lowest level, where injury rate reached 16.06%, and reason is that this group is able to depend on themselves and pay attention to hygiene and bathing Table (4) and these results are identical to [3,4,8].

the results showed that cultural awareness of mother and father has the greatest impact on increase in head lice infestation, because the most recorded injuries were the cultural level of mother and father below the primary or intermediate level as well as economic level had the greatest impact in injury and this result is consistent with [15,14, 16].

Table 1: Total infection of head lice and their percentage by sex in the schools under study

School	Male			Female			Total		
	Examined No.	Infected No.	%	Examined No.	Infected No.	%	Examined No.	Infected No.	%
Hawa				224	41	18.30	224	41	*18.30C
Al-qara'a				179	32	17.87	179	32	17.87*C
Abu Musa Al-Ash'ari	167	31	18.56	—	—	—	167	31	*18.56C
Mukhlis Mawlis first	145	28	19.31	—	—	—	145	28	*19.31B
Al Madar	39	7	17.94	58	17	29.31	97	24	**24.7A
total	351	66	18.80	461	90	19.52	812	156	*19.21B

Capital letters (A, B, C): Different letters indicate significant differences within a single column at the probability level $P > 0.5$

Table 2: relationship of percentage of head lice infestation with nature hair by sex in schools under study

Hair Sex	long			Short			Total
	Examined no.	Infected no.	%	Examined no.	Infected no.	%	Infected no.
Femal							
Male	147	34	23.12	461	56	12.14	90
Total	—	—	—	351	66	18.80	66

Table 3: relationship of percentage of head lice infestation with nature of hair by sex in schools under study

Sex	Male		Female		Total	
Hair nature	curly	tribe	curly	tribe	curly	tribe
Examined No.	129	222	116	345	245	567
Infected No.	43	23	46	44	89	67
%	33.33	10.36	39.65	12.75	36.32	11.81

Table 4: Indicates percentage of infection according to age groups in schools under study

School	Year10			year9-8			7-6year		
	Examined no.	Infected no.	%	Examined no.	Infected no.	%	Examined no.	Infected no.	%
Hawa	68	12	17.64Ab	50	11	22Aa	106	19	17.92Cb
Al-qara'a	64	9	14.06bB	56	9	16.07bB	59	14	23.72aB
Abu Musa Al-Ash'ari	54	9	16.66Ab	65	9	13.84Cc	48	13	27.08aB
Mukhlis Mawlis first	47	7	14.89cB	47	9	19.14bB	51	12	23.52Ba
Al Madar	29	5	17.24Ac	35	8	22.85Ab	33	11	33.33aA
total	262	42	16.03bA	253	46	18.18B	297	69	23.23aB

Capital letters (A, B, C): Different letters indicate significant differences within a single column at probability level $P > 0.5$

Lowercase letters (a, b, c): Different letters indicate significant differences within a single column at probability level $P > 0.5$

Table 5: Indicates percentage of infection according to academic achievement of studied groups

Academic achievement	Examined No.	Infected No.	%
Primary certificate	105	43	**40.95
Intermediate certificate	186	31	*16.66
Prop school certificate	379	19	*5.01
uneducated	142	63	**44.36
Total	812	156	*19.21

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مقارنة انتشار قمل الرأس (*Pediculus humanus capitis* (De Geer,1767) بين ذكور وإناث تلامذة بعض المدارس الابتدائية في مدينة تكريت

ألاء عماد توفيق

قسم علوم الحياة ، كلية التربية للبنات ، جامعة تكريت ، تكريت ، العراق

الملخص

اجريت دراسة لتقييم مدى انتشار حشرة قملة الرأس (*Pediculus humanus capitis* (De Geer,1767) بين ذكور وإناث تلامذة خمسة مدارس ابتدائية في مدينة تكريت (مدرستي ابو موسى الاشعري للبنين والفارعة للبنات في حي الشهداء، ومدرسة حواء للبنات في حي القادسية/ حي الضباط، ومدرسة مولود مخلص الاولى للبنين في حي العصري ، ومدرسة المدار المختلطة في حي شيشين).

اظهرت النتائج انتشار الاصابة بالطفيل بين تلامذة المدارس الخمسة بنسبة اصابة اجمالية بلغت 21.9% منها 13.8% للذكور و 8.11% للإناث، كما تبين ان اعلى نسبة اصابة بالطفيل كانت بين الاشعري للبنين وحواء للبنات والفارعة للبنات بنسبة اصابة بلغت 19.30 و 18.31 و 18.30 و 17.87 على التوالي ، وكانت نسبة انتشار الطفيل بين تلامذة الفئة العمرية 6-7 سنوات اعلى من نسبة انتشارها في بقية الفئات العمرية اذ بلغت 23.23% وادناها الفئة العمرية 10 سنوات فاكثرت التي بلغت 16.03%.

وبينت الدراسة ان لطول الشعر وطبيعته (سبط او مجعد) في نسبة الاصابة بالطفيل اذ بلغت نسبة الاصابة في الاناث ذوات الشعر القصير 12.14% بينما بلغت الضعف تقريبا في الاناث ذوات الشعر الطويل 23.12%، وكانت نسبة الاصابة بين تلامذة الشعر السبط اذ بلغت 36.32% لذوات الشعر المجعد و 11.81% لذوات الشعر السبط.