

## **Incidence of *Pediculus Humanus Capitis* Among Children in AL-Alam Village**

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### **Abstract**

*Pediculus humanus capitis* (head louse) infestation is a common problem in school aged children. A cross-sectional study done in AL-Alam village in Salahadin Province in 2002 aimed to estimate the incidence of *Pediculus capitis* among primary school children of age ranging between 7-14 years.

The study showed that out of 170 children 36 (21.2 %) were infested with *Pediculus capitis*. Higher proportion of infestation was found among female. Infestation among younger children (7-8 years) was very high (40.3 %) in comparison to other age groups. Also, higher proportion of infestation was found among children lived in large families and whom parent's educational levels were low (illiterate). It has been concluded that *Pediculus capitis* infestation is more common among younger children with poor personal hygiene and among longhaired children in this rural area.

### **Introduction**

*Pediculus capitis*, the head lice is a common problem in school aged children (Spear&Buettner,1999), which live on any hair-covered area of scalp and feed on blood.

The sucking lice of the order Anaplura are dorso-ventrally-flattened, wingless insects, which are obligate parasite of mammals. They are highly host specific and cannot normally survive on any other animal (Speare & Buettner,1999). Two species are parasitic on man, *Phthirus pubis* and *Pediculus humanus*. The latter occurs in two distinct populations: *P. humanus capitis*, the head louse, and *P. humanus corporis*, the body louse. Adult head louse is (3-4 mm), and well adapted to their environment, having claws in their legs which are designed to grasp hairs firmly. Therefore, they are not easily dislodged, and any lice seen falling from the infested scalp are usually damaged or deceased. Head louse infestation is usually acquired by head to head contact with another infested individual (Lennette etal,1985) .Lice infestation is generally uncommon in elderly people, but nevertheless may be encountered from time to time, and it is not difficult to diagnose and treat effectively if one is armed with a little knowledge. Incidence of *Pediculus capitis* infestation among children was studied. The studies reveal that socio-economic status is a major factor

influencing the occurrence of pediculosis among school students of both sexes (Amr & Nusier,2000,Estrada & Morris,2000).

Visits were made to 24 farms in the south west of England during February 1998. Twelve of the farmers said that they had seen or suspected lice in their herd since October 1997, and that lice were more frequently observed on the adult cattle. However, examination revealed lice on 18 of the 24 farms, and adult cattle were the least likely group to be infested (Downs & Coles,1999). Findings of the studies support the need for a standardized data collection system for pediculosis in all school districts (Amr & Nusier,2000).The present study aimed to estimate the incidence of *Pediculus capitis* among primary school age children in rural area.

### **Subjects and methods**

A cross-sectional study done in AL-Alam Village in Salahaddin Province in 2002.The study included 170 children (79 female and 91 male) from two primary schools (Al-Fatih Al-Mubeen and Al-Ba`ath Al-Thawri). The ages of studied children ranged from 7-14 years.The children were classified into infested and non-infested according to the presence of head lice (or eggs) which was carried out by visual examination of their head.History about the children and their families were collected by direct interview with those children, using questionnaire including information about child age, sex, number of family members, and parents educational level.

### **Results**

The diagnosis of infestation showed that out of 170 children 36 (21.2 %) were infested with *Pediculus capitis* (Fig. 1).The gender distribution of children with *Pediculus capitis* infestation showed that 26 (72.2 %) female and 10 (27.8 %) male were infested (Fig. 2), with higher proportion of infestation among female (32.9 %) in comparison with male (11 %), (Figure 3).

Age distribution of infestation, as shown in Figure 4, showed high incidence 25 (69.4 %) among the 7-8 years age group children from the total infested children. Also, high proportion of these children (7-8 years) were infested (40.3%) in comparison to 9-10 and 11-12 age groups, how showed infestation of 10.8% and 10.7% respectively. However, no infestation was diagnosed among children of 13-14 years age groups (Fig.5). Fifty percent of infested cases were found among children whom mother's educational level was illiterate (Figures 6 and 7).

Distribution *Pediculus capitis* infestation according to father's educational level as shown in Figure 8, showed that 37.9 % of infested cases were found among both groups of children whom father's educational level was illiterate or

primary. Also, it was found that children whom father's educational level was illiterate have higher proportion of infestation than those whom father's educational level was primary, secondary or higher (fig. 9). Figure 10 shows that more infestation rate 19 (53 %) were among children those lived in large families.

## **Discussion**

It is known that *Pediculus capitis* infestation rate is high in rural areas. The present study shows an infestation rate of 21.2% among two primary school children (91 male and 79 female). This finding is slightly close to the finding of Rupes *et al.* (Rupes et al,1995), who reported an infestation rate of 20% among primary school children in Czech Republic, and Sagua *et al.*, who reported an infestation rate of 25.4% among primary school children in Northern Chile (Sagua et al,1997). It was found that the infestation was more prominent among female. This finding is in agreement with Speare and Buttner (1) this may be due to that the head lice infestation most often is found in longhaired female than male with short hair (Ernest & Rodney,1975). However, in a study recorded in Argentina, the infestation was slightly predominant among male (55.4%) because hairstyle of male in that area was resembled to female hairstyle(Chouela et al,1997).

Regarding parent's educational level, the study shows that the higher proportion of infestation was among children whom parents were illiterate. This may be due to that the most of illiterate parents were working in farms for most of the day, which makes their children far from direct care. Also, illiterate parents have no or little knowledge about health care. The distribution of *Pediculus capitis* infestation according to child's age revealed higher proportion among 7-8 years age group followed by 9-10 and 11-12 years age groups. No infestation was observed among older children (13-14 years age group). Schoolchildren in the age group 8-9 years exhibited higher prevalence rates(Amr & Nusier,2000,Estrada & Morris,2000). This occurs probably because as children enter the school, they will be in contact with large numbers of children coming from families with different socioeconomic and cultural levels. Also, the child has no knowledge about the possibilities of transmission of head lice, especially if his parents were illiterate. As the children grow up their knowledge will improve, and subsequently decreases the rate of infestation. This result is in agreement with Sagua *et al.*(Sagua et al,1997). and Chouela et al (Chouela et al,1997). Statistical analysis for socio-economic classes and infestation rates yield a significant effect of the four classes on infestation. This conclusion was evident among schoolgirls, whose infestation

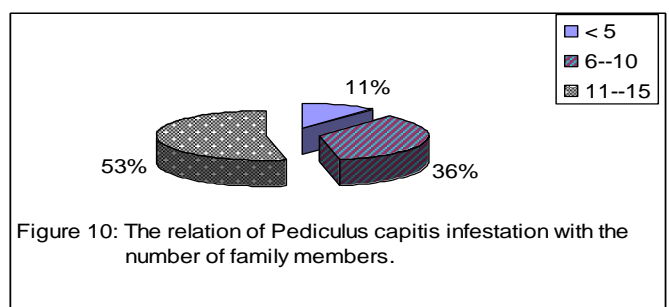
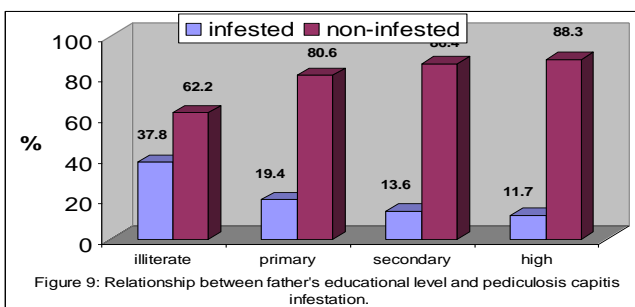
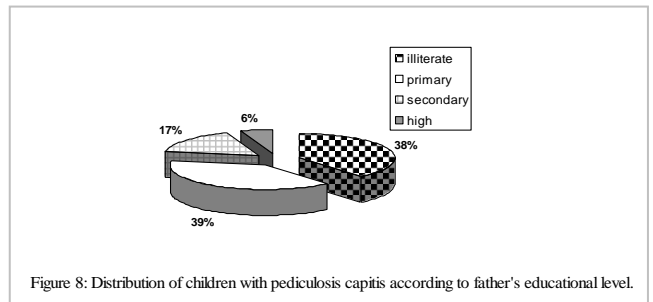
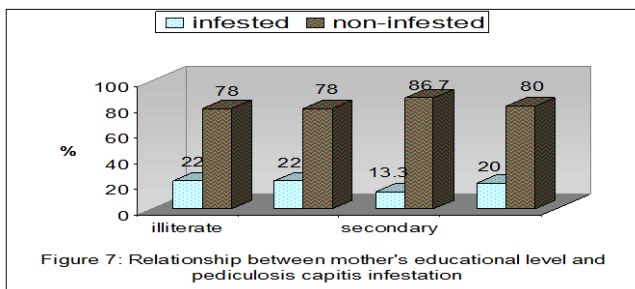
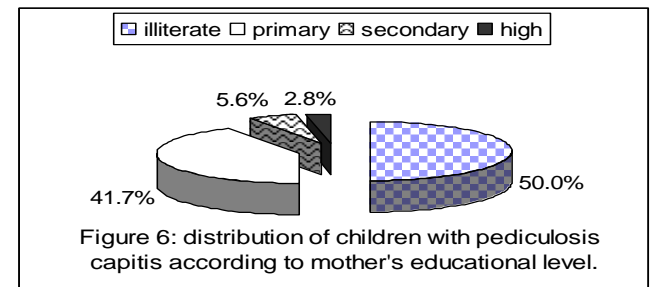
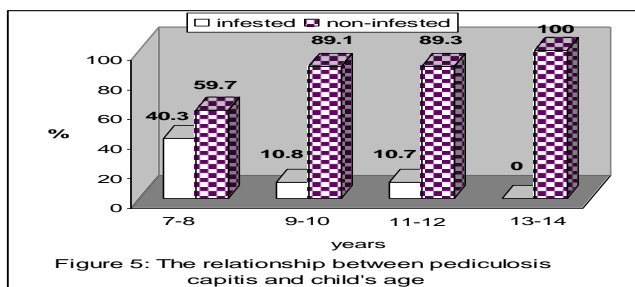
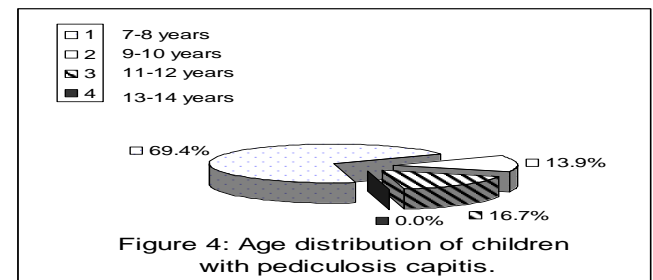
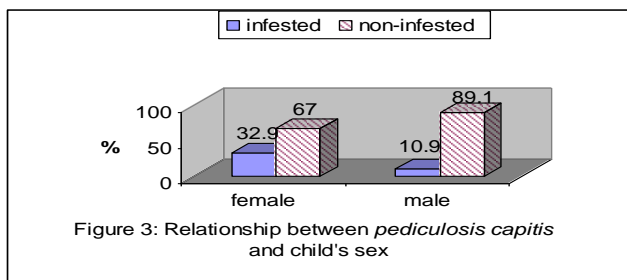
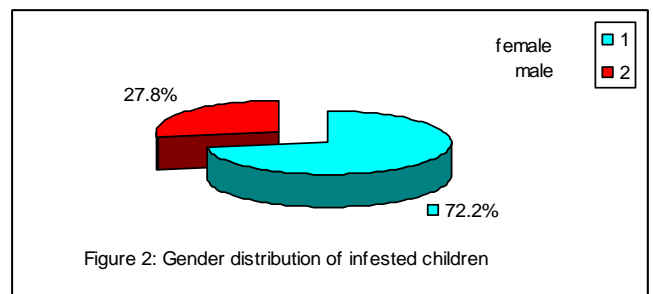
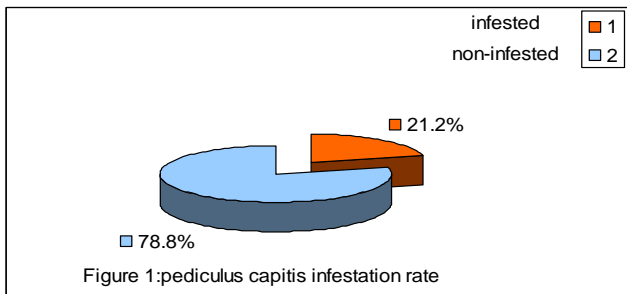
rates were 28.8%, 18.9%, 6.1%, and 0.2% in very low, low, medium, and high socio-economic classes, respectively (Amr & Nusier, 2000).

Furthermore, the infestation was more common among children lived in large families. Time and budgetary constraints restricted the role of the school nurse in pediculosis management. Findings of this study support the need for a standardized data collection system for pediculosis in all school districts.

It has been concluded that *Pediculus capitis* infestation is most often found among longhaired persons. Educational level of parents is important factor in infestation with *Pediculus capitis*. Infestation is more common among younger children and crowded families.

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## انتشار قمل الإنسان *P.h.capitis* في الأطفال في قضاء العلم

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### الخلاصة

يعتبر الخمج بطفيلي قمل الرأس *Pediculus capitis* أحد الأخماج الطفيلية المنتشرة بين الأطفال الذين هم في سن الابتدائية. أجريت هذه الدراسة الميدانية في قرية العلم في محافظة صلاح الدين عام ٢٠٠٢ للميلاد. هدفت الدراسة تقييم حالات حدوث الخمج بقمل فروة الرأس بين الأطفال في المدارس الابتدائية وكانت أعمارهم من ٧-١٤ سنة. أظهرت الدراسة بان ٣٦ (٢١.٢%) طفلا من بين ١٧٠ كانوا خمجة بهذا الطفيلي. كانت نسبة الخمج بين البنات اكثر منها بين الأولاد. وتركز الخمج بين الأطفال الأصغر عمرا" (مجموعة الأعمار ٧-٨ سنوات) حيث كان (٤٠.٣%) بالمقارنة مع المجموعات العمرية الأخرى. فضلا" عن ذلك فقد كانت نسبة الخمج عالية بين الأطفال الذين يعيشون ضمن عائلات كبيرة والذين كان المستوى الثقافي لوالديهم يسيرة (أمي). يستنتج من ذلك بان الخمج بقمل فروة الرأس *Pediculus capitis* منتشرة بين الأطفال ذوي الأعمار الصغيرة وطويلي الشعر والذين يعيشون في بيئة ريفية وضمن عائلات كبيرة تفتقر الى الحالة الصحية الجيدة.