

THE PREVALENCE OF HUMAN PEDICULOSIS IN KOT ADDU DISTRICT MUZZAFFARGARH (PUNJAB) PAKISTAN

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ABSTRACT

During the present study, 500 hosts were examined for *Pediculus capitis* in Kot Addu (Punjab: Pakistan). The survey was conducted from November 2005 to June 2006. Out of 500 hosts, 291 (58.2%) were infested with *P. capitis*. The lice were more prevalent in female hosts (70.81%) as compared to male hosts 47.94%. The prevalence of *P. capitis* was highest (80%) in age group of 61-75 years and lowest (46.22%) in age group of 31-45 years.

Key words: pediculosis, age, humans, prevalence, relationship, sex.

INTRODUCTION

Pediculus capitus affects millions of humans globally, especially children of 5-14 years of all socioeconomic groups (Chosidow *et al.*, 1994). The distribution of the influx is universal and tends to be much more prevalent in swarming urban centers. Predisposing factors include: promiscuity, age, sex (higher frequency in girls), and some hair traits (color quantity). A survey in the Israeli armed forces showed a higher incidence during the warmer months (Chosidow, 2000). These lice generally infest persons with poor hygiene, and it is a big problem in refugee camps and among the homeless (Meinking *et al.*, 2001). Keeping in view the importance of this ectoparasite, the study was designed with following aims. (a) To study the overall prevalence of pediculosis in humans; (b) to study the relationship between sex and pediculosis in humans; (c) to study the relationship between age and pediculosis in humans.

MATERIALS AND METHODS

The present investigation was carried out from November 2005 to May 2006 in order to study the prevalence of *Pediculus capitis* in humans in Kot Addu. A total of 500 hosts were examined for this purpose. The collected lice were transferred into bottles containing 5% formalin. The sex and age of the host was also recorded. The following technique was used to identify the parasite.

Permanent mounts of head lice: The lice were washed with water to remove the fixative and then placed in 10% KOH to make the parasites transparent. The specimens were washed with distilled water in order to remove the alkali.

The lice were dehydrated by placing in 30%, 50%, 70%, 90% and 100% alcohol for 5 minutes in each. Then the specimens were cleared in xylene and mounted in Canada balsam and examined under the microscope for identification (Cable, 1985).

RESULTS

The present study was conducted in order to determine the prevalence of *Pediculus capitis* from November 2005 to May 2006 in Tehsil Kot Addu. The parameters studied were, the relationship between sex and age of humans with the parasite.

The overall prevalence of pediculosis in humans in Kot Addu: The overall prevalence of *P. capitis* in humans was calculated, the results are shown in Table 1 and Figure 1. According to these results the prevalence was 58.2%.

Relationship between sex and pediculosis in humans in Kot Addu: The relationship between *P. capitis* and sex was calculated; the results are presented in Table 2 and Figure 2. According to these results the prevalence in male hosts was 47.94% and in female hosts it was 70.81%.

Relationship between age and pediculosis in humans in Kot Addu: The relationship of *P. capitis* between different age groups in humans was calculated, the results are presented in Table 3 and in Figure 4. According to these results the prevalence was highest in age group of 61-75 years (80%) and lowest in age group of 31-45 years 46.22%.

DISCUSSION

The present survey was conducted in order to study the prevalence of head louse in humans. The other parameters included the relationship between sex, and age of the host with *Pediculus capitis*.

The overall prevalence of pediculosis in humans in Kot Addu: During the present study the overall prevalence of *P. capitis* in humans was 58.2%. Studies have been conducted on the same parameter by different researchers in different parts of the world. Amr *et al.* (2000) examined a total of 2519 school students for the presence of *Pediculus capitis*, enrolled in eight elementary governmental schools. The overall prevalence was (13.4%). Morsy *et al.* (2001) studied the prevalence of lice infesting students of primary, preparatory and secondary schools in Cairo, Egypt. Prevalence rate was 21.86%, 30.38% and 12.94% respectively. Khokhar (2002) studied *Pediculosis capitis* among primary school children. Out of 940 hosts 156 (16.59%) were found to be infested with head louse. Willems *et al.* (2001) examined a total of 6,169 schoolchildren age 2.5 to 12 years from Ghent (Belgium). The overall prevalence of head lice was 8.9%. Heukelbach *et al.* (2005) examined a total of 1460 individuals in Brazil and concluded that out of 1460, 43.4% hosts were infected by *Pediculosis capitis*. Willems *et al.* (2001) studied a total of 6,169 schoolchildren for the prevalence of *Pediculosis capitis*. The overall prevalence was 41%. Catala *et al.* (2005) studied the prevalence of *Pediculus capitis* infestation among Argentinean schoolchildren. The study included 1,370 schoolchildren. The general prevalence was 61.4%.

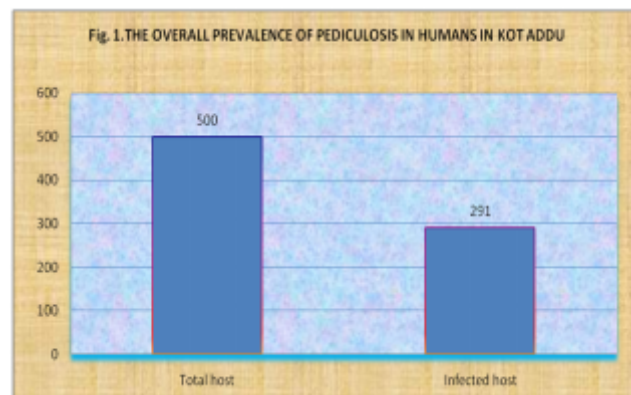
The results of the present study are not in agreement with the studies conducted by Amr *et al.* (2000), Morsy *et al.* (2001), Khokhar (2002), Lapeere *et al.* (2005), Heukelbach *et al.* (2005), Willems *et al.* (2001). According to the results of all these studies the prevalence is low as compared to the results of the present study and the study conducted by Catala *et al.* (2005). This could be explained on the basis that the prevalence of *Pediculus capitis* is related to poor socio-economic status, length of hair, family size, age, crowding, lower level of education and personal hygiene (Sinniah *et al.*, 1983; Suleman *et al.*, 1989). This has been supported by Buczek *et al.* (2004) who studied the prevalence of pediculosis in school children in Poland and according to his findings the prevalence of pediculosis decreased with increasing life standards, i.e. with high income, accessibility and consumption of water and better health care systems. According to EI-Basheir *et al.* (2002) infestation rates of pediculosis were higher in the rural areas with low socioeconomic levels, concrete houses with over-crowded family members. The same factors may be responsible for the higher prevalence of *Pediculus capitis* during the present study.

Relationship between sex and pediculosis in humans in Kot Addu: According to the results of the present investigation the prevalence in male hosts was 47.94% and in female hosts it was 70.81%. Various researchers have conducted research on same the parameter in the different parts of the world.

Menan *et al.* (1999) studied the relationship between sex and *Pediculosis capitis* so according to their results the girls were more frequently infected than the boys; 24.88% for girls and 11.85% for boys. Amr *et al.* (2000) examined a total of 2519 school students of both sexes in eight elementary governmental schools for the presence of *Pediculus capitis*. Girls showed a higher prevalence 14.5% than boys 11.1%. Khokhar (2002) examined a relationship between sex and *Pediculosis capitis* among primary school children in Delhi.

Out of a total of 940 significantly higher proportions of girls 20.42% were found to be in tested as compared to boys 13.86%. Kokturk *et al.* (2003) also examined the relationship between *P. capitis* and sex. The prevalence of infestation was significantly higher in girls (13.3%) than in boys (1.1%). Buczek *et al.* (2004) examined a total of 95, 153 schoolchildren living in urban and rural areas. *Pediculosis capitis* was observed most sequently in girls both in the urban (63.5%) and rural (75.3%) schools. Catala *et al.* (2005) examined the prevalence of *Pediculus capitis*, among Argentinean schoolchildren. The prevalence among girls was 79%; and in boys was 44%.

The above comparison shows that males have lower prevalence of head louse as compared to females. This could be due to hair length as males have short hair as compared to females, providing better protection to lice.



Relationship between age and pediculosis in humans in Kot Addu: The prevalence was highest (80%) in age group of 61-75years and lowest (46.22%) in age group of 31-45years. According to various studies the *Pediculosis capitis* is more prevalent in children and the prevalence decreases as the age increases and then it again increases in the elderly humans. Menan *et al.* (1999) examined a

relationship between age and *Pediculosis capitis* in Abidjan school. According to their results children most frequently affected were those aged 14 to 15 years (24%) or 6 to 7 years (23.21%). The children least affected were those aged 12 to 13 years (15.21%) or 10 to 11 years (16.21%). This may be explained on the basis that the children and elderly have less resistance as compared to adults (Perotti *et al.*, 2004; Menan *et al.*, 1999).

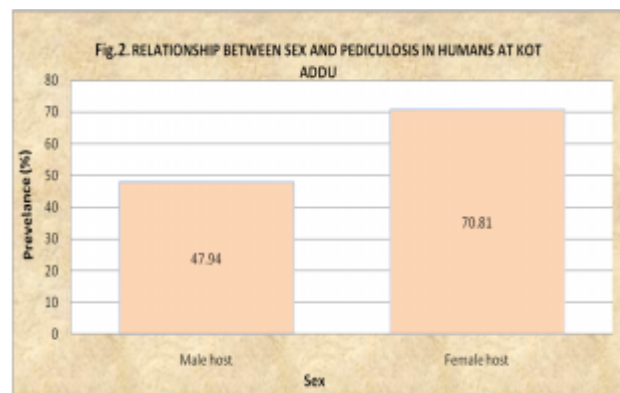


Table 2. Relationship between sex and pediculosis in humans in Kot Addu

Name of parasite	Male hosts			Female hosts		
	No. of hosts examined	No. of hosts infested	Prevalence (%)	No. of hosts examined	No. of hosts infested	Prevalence (%)
<i>Pediculus capitis</i>	267	128	47.94	33	165	70.81

Table 3. Relationship between age and head pediculosis in Kot Addu

Name of parasite	Age groups of hosts examined	No. of hosts examined					
		1month-15yr	16-30yr	31-45yr	46-60yr	61-75yr	76-90yr
<i>Pediculus capitis</i>	No. of hosts observed	n=134	n=158	n=106	n=67	n=25	n=10
	500	93(69.40%)	81(51.26%)	49(46.22%)	40(59.70%)	20(80%)	5(50%)

Fig.3. RELATIONSHIPS BETWEEN AGE AND HEAD PEDICULOSIS IN HUMANS IN KOT ADDU

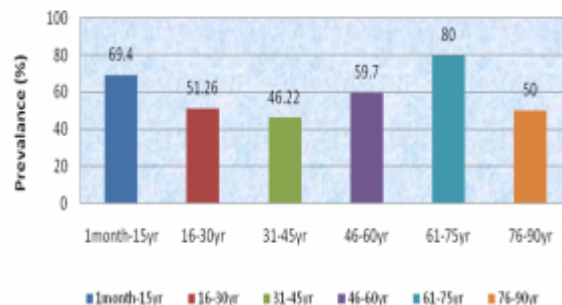


Table 1. The overall prevalence of pediculosis in humans in Kot Addu

Name of parasite	No. of hosts examined	No. of hosts infested	Prevalence (%)
<i>Pediculus capitis</i>	500	291	58.2

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