

SHORT COMMUNICATION

Infestation of people with lice in Kathmandu and Pokhara, Nepal

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Abstract. The prevalence of infestation with head lice and body lice, *Pediculus* spp. (Phthiraptera: Pediculidae) and pubic (crab) lice *Phthirus pubis* (L.) (Phthiraptera: Phthiridae), was recorded from 484 people in Nepal. The prevalence of head lice varied from 16% in a sample of people aged 10–39 years of age, to 59% in street children. Simultaneous infestations with head and body lice (double infestations) varied from 18% in slum children to 59% in street children.

Key words. *Pediculus* spp., *Phthirus pubis*, body lice, crab lice, head lice, Phthiraptera, prevalence, Nepal.

The lice which infest humans are considered by some authors to belong to three distinct species: *Pediculus capitis* DeGeer, body (clothes) lice, *Pediculus humanus* L. (Phthiraptera: Pediculidae) and pubic (crab) lice *Phthirus pubis* (L.) (Phthiraptera: Phthiridae) (e.g. Busvine, 1978). In contrast, other authors consider body and head lice to be conspecific: *Pediculus humanus capitis* De Geer and *Pediculus h. humanus* L. (Durden & Musser, 1994).

Body lice are known to transmit three pathogenic bacteria among humans: *Bartonella quintana* (trench fever), *Borellia recurrentis* (recurrent fever) and *Rickettsia prowazekii* (louse-borne typhus). It is widely held in the literature that head lice do not or cannot transmit pathogenic bacteria to people, but the evidence for this hypothesis is inconclusive (see Robinson *et al.*, 2003). Indeed, the only laboratory experiments to test the ability of head lice to transmit pathogenic bacteria indicate that head lice may indeed be able to act as vectors of at least one bacterium, *R. prowazekii* (see Robinson *et al.*, 2003).

The prevalence of lice on people in Nepal has not been investigated previously. In the present study, the prevalence of body lice, head lice and pubic lice was recorded from people in the two largest cities of Nepal, Kathmandu and Pokhara. The prevalence of infestations with lice was determined for samples of five groups of people: (i) orphanage children, aged 4–14 years, from Paropakar Orphanage,

Kathmandu; (ii) school children, aged 4–14 years, from Paropakar Adarsha High School, Kathmandu; (iii) street children, aged 4–14 years, from Pokhara; and (iv) slum children, aged 4–14 years, Pokhara. The street children slept together in rudimentary iron shelters at recycling yards, whereas the slum children lived with their families in slums. The final group (v) was composed of people from Wards 19 and 20 of Kathmandu, aged between 10 and 39 years of age, who brought their dogs to a dog vaccination camp against rabies. Although this is not a random sample, this group is nevertheless a useful comparator.

Infestation was determined by visual examination by the authors, self-examination by patients and by a written questionnaire. The answers given in the questionnaires completed by patients were compared with the results of the clinical examinations on a number of occasions to confirm their accuracy. People were examined for head lice with plastic and metal louse/nit-combs for at least 2 min. Hair conditioner was applied to the hair of the people from Pokhara but not Kathmandu, to help detect lice. The clothes, particularly shirts and jumpers, were examined for body lice for at least 2 min. Information on pubic lice was collected by questionnaire only. We did not confirm the veracity of questionnaire answers about pubic lice.

Head lice and body lice were prevalent in our sample of 484 people. The prevalence of head lice varied from 16% in the people from Wards 19 and 20 to 38% in school children from Kathmandu (Tables 1 and 2). The prevalence of double infestations (simultaneous infestations with head and body lice) varied from 18% in slum children to 59% in street children from Pokhara (Table 1). Street children,

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Table 1. Pediculosis of children from Kathmandu and Pokhara, Nepal. Double infestations are simultaneous infestations with head and body lice.

	Age (years)	Number examined	Number with double infestations (%)	Number with head lice only (%)
Orphanage children from Kathmandu	4–8	3	0 (0%)	3 (100%)
	9–13	9	1 (11%)	4 (44%)
	14–15	21	13 (62%)	2 (10%)
Total		33	14 (42%)	9 (27%)
School children from Kathmandu	4–8	13	6 (46%)	3 (23%)
	9–13	68	20 (29%)	27 (40%)
	14–15	26	3 (12%)	11 (42%)
Total		107	29 (27%)	41 (38%)
Street children from Pokhara	4–8	18	11 (61%)	7 (39%)
	9–13	41	30 (73%)	7 (17%)
	14–15	29	11 (38%)	6 (21%)
Total		88	52 (59%)	20 (23%)
Slum children from Pokhara	4–8	30	8 (27%)	8 (27%)
	9–13	41	14 (34%)	21 (51%)
	14–15	50	0 (0%)	14 (28%)
Total		121	22 (18%)	43 (36%)

Table 2. Pediculosis in a sample of dog-owners from Kathmandu (10–39 years old), Nepal. Double infestations are simultaneous infestations with head lice and body lice. nr: not recorded.

Age (years)	Number examined	Number with double infestations (%)	Number with head lice only (%)	Number with head lice and crab lice (%)	Number with body lice and crab lice (%)
10–19	nr	6	3	0	0
20–29	nr	10	7	3	0
30–39	nr	16	11	6	8
Total	135	32 (24%)	21 (16%)	9 (7%)	8 (6%)

who huddle together to keep warm at night, had the highest prevalence of head lice and double infestations (Table 1).

We can find only two other published reports on the prevalence of double infestations. Sholdt *et al.* (1979; Fig. 23) found prevalences of double infestations from just under 10% (children aged 1–9 years) to 25% (10–19 years) in samples of people of different ages from Addis Ababa and environs in Ethiopia. Morsy *et al.* (2000) found that 34 of the 50 orphanage children they examined in Nasr City, Cairo, Egypt (68%) had double infestations. However, all of these data, and data from this study, should be interpreted cautiously, as the prevalence of infestation may vary with season (e.g. see Sholdt *et al.*, 1979; Fig. 14).

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