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Prevalence of scabies and head lice among children in a welfare home in Pulau Pinang, Malaysia

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Abstract. This is a survey of 120 children for scabies and head lice infestations in a welfare home in Pulau Pinang. Children from this welfare home (Rumah Kanak-Kanak Taman Bakti, Kepala Batas, Pulau Pinang) were randomly selected. Majority of them were Malays (72.5%) and the rest were Indians. The infestation rates were highest in the 10-12 years age group with 46% and 70% for scabies and head lice respectively. Head lice was more commonly seen in girls (65%) than boys (29%). Scabies was more commonly seen in boys (50%) than girls (16%). Overall prevalence rate for scabies was 31% and for head lice infestation was 49%.

INTRODUCTION

Scabies is an infestation caused by human itch mite, *Sarcoptes scabiei*, which infests some 300 million persons each year and is one of the most common causes of itching dermatoses throughout the world. Gravid female mite measuring 0.3 to 0.4 mm in length, burrows superficially beneath the stratum corneum for a month, depositing two or three eggs a day. Nymphs that hatch from these eggs mature in about 2 weeks through a series of molts and then emerge as adults to the surface of the skin, where they mate and subsequently reinade the skin of the same or another host. Transfer of newly fertilized female mites from person to person occurs by intimate personal contact and is facilitated by crowding, uncleanliness and sexual promiscuity. Outbreaks commonly occur in nursing homes, mental institutions and hospitals (Maguire & Spielman, 1998).

Kaur & Nadeswary (1980) did a prevalence study on scabies in the Jengka Triangle in Pahang and they found that scabies was the commonest skin lesion among the 5590 people examined. Its prevalence was 11.6%, both sexes were equally affected. Prevalence was high among children and teenagers, the worst affected being the 5-9 years old (24%). The problem of scabies in Jengka could be due to inadequate and irregular water supply, plus lack of mothers’ supervision of the personal hygiene of their children aged > 2 years. Normaznah et al. in 1996 reported that out of 312 Orang Asli tested, 24.7% was positive for polyvalent anti-*Sarcoptes* antibodies. Norhayati et al. in 1998 did a study of health status of Orang Asli population (based on physical examination findings) in 4 villages in Pos Piah, Sungai Siput Perak, Malaysia. In all 356 individuals between 4 months-72 years old (178 males and 178 females) who participated in this study, the commonest skin infection was scabies.

Head lice is another common ectoparasite which feed at least once a day on human blood and are transmitted directly from person to person and occasionally by shared headgear and grooming implements. Female lice cement
their eggs (nits) firmly to hair. A suspected
diagnosis of pediculosis is confirmed by the
finding of nits or adult lice on hairs. The
prevalence is highest among school-aged
girls who keep long hair (Maguire &
Spielman, 1998).

Sinniah et al. in 1981 did a survey of
308,101 primary school children in
peninsular Malaysia and reported that
10.7% of children were infested with head
lice, Pediculus humanus capitis. The
prevalence rate was higher in the
economically less advanced states of
Terengganu (34%), Kelantan (23%), and
Perlis (21%) compared to the other states
(4-13%). Of 14,233 school children
examined in the state of Melaka, 26% of
Indians, 18.7% of Malays, 6.1% of Europeans,
and 0.7% of Chinese had pediculosis. The
prevalence rate, which has remained
unchanged over several years, does not
appear to vary with age but is higher in
children with long hair and those from the
lower socioeconomic groups. Boys have a
lower infestation rate than do girls. The
higher incidence in Indians and Malays
correlates well with their lower socio-
-economic status in the community, and
their cultural habit of maintaining longer
hair than do the Chinese. The difference
become less apparent in the higher
socioeconomic groups (Sinniah et al.,
survey of 4,112 primary school children
living in and around Kuala Lumpur,
Malaysia and reported that 12.9% of the
children were infested with P. humanus
capitis. Indians (28.3%) and Malays (18.9%)
had a higher prevalence than Chinese
(4.6%). The prevalence rate was found to be
related to socio-economic status, length of
hair, family size, age, crowding and
personal hygiene. The prevalence of head
lice among school children in England was
2.4% (Donaldson, 1976).

Bachok et al. (2006) did a cross-
sectional study to determine the
prevalence and associated factors of
head lice infestation among primary
school children in Kelantan, Malaysia. A
total of 463 eleven-year-old pupils were
screened by visual scalp examination and
fine-toothed combing. The prevalence of
head lice infestation was 35% with 11.9%
inactive (presence of hatched eggs and the
absence of adult or nymph lice), 23.1%
active (presence of live adult or nymph lice
or viable eggs), 18.2% light (10 or less egg
present) and 16.8% heavy infestations
(more than 10 eggs present). The
associated factors were girls; family
income of RM247 or less; head lice
infestation of family members and having
four or more siblings. The high prevalence
of head lice infestation in this study
indicated the need for regular school health
programme that emphasises on the
eradication of head lice.

Sinniah & Sinniah (1982) evaluated the
effectiveness of 1%, 2% and 5% DDT in
coconut oil in 374 cases and revealed cure
rates of 3.5%, 15.8% and 51.3%, respectively,
suggesting that the head louse has probably
developed resistance to this insecticide in
Malaysia. Treatment with 0.2% and 0.5%
malathion in coconut oil gave cure rates
of 93% and 100% respectively. Treatment
with gammexane and actellic at 0.5%
concentration gave a cure rate of 100%
against adults and nymphs of P. humanus
capitis (Sinniah & Sinniah, 1982).

Failure to treat all family members at
the time the initial case is detected leads
to almost 100% infestation rates among
other family members (Nitzkin, 1977).

There are as yet no comprehensive
data on scabies and head lice infestation
throughout peninsular Malaysia, but
individual reports from the above study
suggest a high prevalence. This study is to
determine the prevalence of scabies and
head lice among children in a welfare home
in Pulau Pinang, Malaysia.

MATERIALS AND METHODS

A total of 120 out of 160 children from a
welfare home in Pulau Pinang (Rumah
Kanak-Kanak Taman Bakti, Kepala Batas,
Pulau Pinang) were randomly selected.
Majority of them were Malays (72.5%) and
the rest were Indians. Sociodemographic
data was taken from each child and the
child was thoroughly examined for scabies and head lice. Clinical examination was done to look for types of skin lesions and itching rash suggestive of scabies. For head lice, the screening was done by examination of the scalp looking for lice and nits on the hair with the aid of fine toothed comb, and a child would be considered as positive if there was evidence of head lice or nymphs and presence of live or dead nits.

RESULTS

Table 1 shows the prevalence of scabies among children in a welfare home in Pulau Pinang. Children aged 10-12 years showed the highest prevalence followed by 7-9 years age group and lastly the 4-6 years age group. More males were affected by scabies. The overall prevalence rate for scabies was 31%.

Table 2 shows the prevalence of lice infestation among children in a welfare home in Pulau Pinang. Children aged 10-12 years showed the highest prevalence followed by 7-9 years age group, 13-15 years age group and lastly the 4-6 years age group. More females were affected by head lice. The overall prevalence rate for lice infestation was 49%.

DISCUSSION

This study showed that the prevalence of scabies was high among children in a welfare home in Pulau Pinang. Overall prevalence rate was higher (31%)

<table>
<thead>
<tr>
<th>Age Group (Years)</th>
<th>Male</th>
<th>Female</th>
<th>Total (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>4–6</td>
<td>14</td>
<td>11</td>
<td>6 (24%)</td>
</tr>
<tr>
<td>7–9</td>
<td>18</td>
<td>14</td>
<td>14 (44%)</td>
</tr>
<tr>
<td>10–12</td>
<td>20</td>
<td>17</td>
<td>17 (46%)</td>
</tr>
<tr>
<td>13–15</td>
<td>–</td>
<td>23</td>
<td>23 (65%)</td>
</tr>
<tr>
<td>16–18</td>
<td>–</td>
<td>3</td>
<td>3 (10%)</td>
</tr>
<tr>
<td>Total</td>
<td>52</td>
<td>68</td>
<td>37 (31%)</td>
</tr>
</tbody>
</table>

* Males above 12 years old were transferred to another welfare home

<table>
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<tr>
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<th>Male</th>
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</tr>
</thead>
<tbody>
<tr>
<td>4–6</td>
<td>14</td>
<td>11</td>
<td>5 (20%)</td>
</tr>
<tr>
<td>7–9</td>
<td>18</td>
<td>14</td>
<td>18 (56%)</td>
</tr>
<tr>
<td>10–12</td>
<td>20</td>
<td>17</td>
<td>26 (70%)</td>
</tr>
<tr>
<td>13–15</td>
<td>–</td>
<td>10</td>
<td>10 (33%)</td>
</tr>
<tr>
<td>16–18</td>
<td>–</td>
<td>0</td>
<td>0 (0%)</td>
</tr>
<tr>
<td>Total</td>
<td>52</td>
<td>44</td>
<td>59 (49%)</td>
</tr>
</tbody>
</table>

*Males above 12 years old were transferred to another welfare home
compared to the prevalence rate in children in welfare homes in Kuala Lumpur (25%) (Jamaiah et al., 2000). Crowded living condition, intimate personal contact and lack of personal hygiene predisposed these children to scabies. The other factors that contributed to the increasing prevalence of scabies in the welfare home were host behavior patterns and sharing of infected clothes and bed linens. This study showed that the highest prevalence was found among children in the age group 10-12 years old and predominantly in males. In a serologic survey among the Orang Asli in Malaysia, no significant difference was found between the positive rates in males and females (Normaznah et al., 1996). Jamaiah et al. (2000) reported that majority (45.5%) of scabies from welfare homes in Kuala Lumpur was between 13-15 years age group and both males and females were equally affected. In Malawi and Egypt, the highest rate was found among children 0-9 years (Landwehr et al., 1998; Hegazy et al., 1999).

This study also showed that head lice infestation was a common health problem among children in a welfare home in Pulau Pinang. Overall prevalence rate was 49% compared to the study reported in children in welfare homes in Kuala Lumpur which was 54% (Jamaiah et al., 2000). Intimate person-person contact, improper personal hygiene and continuous sharing of personal items predisposed these children to this infestation and reinfection.

In this study, the lice infestation was more common in girls who had longer hair than boys. By nature, head lice move towards shadow or dark coloured objects in their vicinity (Keh, 1979). Thus, long and thick hair provides favoured vicinity and promotes the occurrence of head lice.

Some of the children reported that they were free from head lice before they came to the home and acquired the infection at the welfare home. It is important to ensure that all the children in the welfare home received treatment for both head lice and scabies, so that transmission can be prevented. For head lice, the preferred treatment is 1% permethrin cream rinse which kills both lice and eggs. There are several ways to control scabies, such as increase awareness and better case finding, education of the staff at the welfare home, improve hygienic measures and massive treatment campaigns using effective drugs such as topical permethrin and oral ivermectin (Hegazy et al., 1999). Application of 5% permethrin cream for a single overnight is effective. Other treatments include topical crotamiton cream or benzyl benzoate applied topically. It is also important to educate the children to practice personal cleanliness (Maguire & Spielman, 1998).

Prevalence of scabies and head lice in welfare home are still high. Therefore screening and treatment for scabies and head lice among children in welfare homes need to be carried out regularly to reduce the infestation rates. The children and the care givers should be given health education regarding the modes of transmission and prevention of head lice and scabies. Avoiding the sharing of personal belongings such as combs to prevent head lice infestation and avoiding sharing of infected clothes and bed linens to prevent scabies should be strongly emphasized.

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REFERENCES


