ORIGINAL ARTICLE

Epidemiology of Pediculosis among Primary School Children

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ABSTRACT

Aim: To assess the prevalence of pediculosis in primary school children and to identify the factors responsible for pediculosis.
Design: Observational descriptive study
Duration of study: One month
Place and duration of study: Study was conducted at Institute of Public Health, Lahore and data were collected in the month of from 15 December, 2014 to 15 January,2015 from primary school children of ward No.13 of Zarghon Town, Quetta .
Methods: It was descriptive study in which 230 primary school children of ward No.13 of Zarghon Town, Quetta were included. Data were collected through questionnaire, which was analyzed on using SPSS ver.17.0. Frequencies and percentages were calculated and data was presented in tables.
Results: In boys, majority number of the students were from class 3 and 4, 40(34.8%) in each class and 35(30.4%) were students of class-5. Similarly in girls, majority number of students 40(34.8%) were of class-3 and class-4 each and 35(30.4%) number were students of class-5. Students age range from 8yrs to more than 10yrs.
Conclusion: Majority of children was more than 8 years old and the Main stream of the boys and girls were living in extended family system. Socio-cultural and Economic status of the community be improved and hygiene concepts and practices be promoted.
Keywords: Epidemiology, pediculosis, public health

INTRODUCTION

head louse infestation or pediculosis, is caused by Pediculus humanus capitis. Lice are compel[1], blood-sucking parasites that can infest the head (*Pediculus humanus* var *capitis*), body (*Pediculus humanus* var *corporis*), and pubic region (*Phthirus pubis*)[2]. Body and scalp lice are around 1 to 3 mm long, or about the size of a sesamum indicum seed, and are planar dorsoventrally. The pubic louse is much shorter. Lice are incompetent to bounce or glide; consequently, transmission requires close contact[3]. The head louse start as an egg deployed near the scalp and "glued" stiffly to a hair shaft. After three to four days, the embryo's central nervous system is fully developed. It incubates as a nymph in seven to 10 days. Nine to 12 days after incubating, the nymph develops into a sexually mature male or female. Within 24 hours of breeding, the mature female louse begins laying seven to 10 eggs a day. Repeated conception is not required. Head lice of both sexes have a life expectancy of as much as 30 days. They endure only 15 to 20 hours off the host. Nymphs and adult head lice proceed frequent blood meals, dispensing to the symptoms of itching[4]. Head louse infestation results in sleep disturbances, difficulties in concentration (with resultant poor performance in school), social distress, stigmatization, discomfort, embarrassment and often unnecessary absence from school. At times, constant infestation has been associated with high morbidity and secondary bacterial infection[5,6]. Another study states that Head louse infestation also affects adults and prevalence is influenced by socio-economic variables like overcrowding, family size, age, gender and hair characteristics[7]. Presence of head lice in school children usually raises concern amongst school health authorities where they exist as teachers, parents and the children. Unfortunately, problem of pediculosis is ignored in areas where there are other more serious health problems like malaria, schistosomiasis etc[8]. Pediculosis is prevalent in both developed and developing countries in all socio-economic classes especially among those living in unhygienic conditions[6,9,10]. This is because pediculosis is transmitted through direct contact with an infected person. Infestation results in pediculosis which affects millions of children[6,10,11].

In Pakistan, reliable community-based data on the prevalence and morbidity of head lice are virtually non-existent. To fill this gap in this region study was planned and the rationale of study is to determine the prevalence of pediculosis in primary school children and to identify the factors responsible for pediculosis.

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MATERIALS AND METHODS

Study was supervised at Institute of Public Health, Lahore and length of study was one month and information were collected from 15 December, 2014 to 15 January, 2015 from school kids of ward No.13 of Zarghon city, Quetta. It had been empiric cross-sectional study during which 230 school youngsters of ward No.13 of Zarghon city, Quetta were enclosed. School youngsters of grade 3-5 were enclosed and people students who were willing to participate within the study were enclosed within the study. youngsters less than grade three and over grade five were excluded from the study and people who refused to cooperate within the study were excluded from the study. Information were collected through questionnaire, that consisted of socio-demographic characteristics, personal hygiene, examination of students for pediculosis. Permission was apprehending from district education officer and principal of the varsity. lecturers were contacted for the selection of students at random and in break – time screening of every student was done by visual examination(naked eye and magnifying glass) of the top, webs, intertriginous areas in correct daylight for dandruff, nits, lice, length of hair, skin lesions etc for infestation. Information were analyzed on using SPSS ver.17.0. Frequencies and percentages were calculated and information was conferred in tables.

RESULTS

Table -1 Class variation of children

Class	Boys	Girls
Class 3	40(34.8%)	40(34.8%)
Class 4	40(34.8%)	40(34.8%)
Class 5	35(30.4%)	35(30.4%)
Total	115(100%)	115(100%)

Table 2: Age variation of children

Age	Boys	Girls
Upto 8years	35(30.4%)	38(33.1%)
9-10 years	40(34.8%)	45(39.1%)
>10years	40(34.8%)	32(27.8%)
Total	115(100%)	115(100%)

Table -1 showed out of 230 primary school children 115 students were boys and girls respectively. In boys, majority number of the students were from class 3 and 4, 40 (34.8%) in each class and 35 (30.4%) were students of class-5. Similarly in girls, majority number of students 40 (34.8%) were of class-3 and class-4 each and 35 (30.4%) number were students of class-5. Students age range from 8 to more than 10yrs. Table 2 showed among the boys, majority of the students were 40(34.8%) in 9-10 years and more than 10yrs old age group each and 35(30.4%) were in age group of up to 8 yrs old. The majority of the girls were 9-10yrs old, 45 (39.1%) and secondly the number of girls 38(33.1%) were upto 8 years old, followed the third group of 32(27.8%) were more than 10 years old.

Table 3: Pediculosis observation

Characteristics	Boys Frequency	Girls Frequency
Lice		
Yes	91(79.1%)	95(82.6%)
No	24(20.9%)	20(17.4%)
Total	115(100%)	115(100%)
Nits		
Yes	91(79.1%)	95(82.6%)
No	24(20.9%)	20(17.4%)
Total	115(100%)	115(100%)
Length of hair		
<5cm	83(72.2%)	0
5-15cm	32(27.8%)	27(23.5%)
>15cm	0	88(76.5%)
Total	115(100)	115(100%)
Dandruff		
Yes	73(63.5%)	83(72.2%)
No	42(36.5%)	32(27.8%)
Total	115(100%)	115(100%)

Table-3 describes that among 115 boys, lice were observed in 91(79.1%) while 24(20.9%) had no lice. Similarly among 115 girls, lice were observed in 95 (82.6%) while 20(17.4%) had no lice. Among the boys, majority 91(79.1%) had nits but 24(20.9%) had no nits. Likewise among 115 girls, majority 95(82.6%) had nits but 20 (17.4%) had no nits. Result shows that 83(72.2%) boys had hair length <5cm and 32(27.8%) had 5-15 cm hair length. Among girls 27(23.5%) had hair length 5-15 cm and 88 (76.5%) had hair length >15cm. Dandruff was found in 73(63.5%) boys while dandruff was absent in 42 (36.5%) boys. Likewise dandruff was found in 83(72.2%) girls while dandruff was absent in 32(27.8%) girls.

Factors responsible for pediculosis among children: Table demonstrates that among 100 boys whose mothers were illiterate, 81(70.4%) had pediculosis and 19(16.5%) had no pediculosis. Likewise among 15 boys whose mothers were literate, 10(8.7%) had pediculosis and 5(4.4%) had no pediculosis. Among 99 girls whose mothers were illiterate, 83(72.2%) had pediculosis and 16(13.9%) had no pediculosis. Among 15 girls whose mothers were literate, 12(10.4%) had pediculosis and 4(3.5%) had no pediculosis. Table 4 shows that among 98 boys whose fathers were illiterate, 79(68.7%) had pediculosis and 19(16.5%) had no pediculosis. Likewise among 17 boys whose fathers were literate, 12(10.4%) had pediculosis and 5(4.4%) had no pediculosis. Among 100 girls whose fathers were

illiterate, 83(72.2%) had pediculosis and 17(14.7%) had no pediculosis. Likewise among 15 girls whose fathers were literate, 12(10.4%) had pediculosis and 3(2.7%) had no pediculosis. Table-4, demonstrates that among 36 boys whose family size was <4 members, 30(26.1%) had pediculosis and 6(5.2%) had no pediculosis. Among 61 boys whose family size was < 4 members, 24(20.9%) had pediculosis and 3(2.7%) had no pediculosis. Among 88 girls whose family size was >4 members, 71(61.7%) had pediculosis and 17 (14.7%) had no pediculosis.

Table reflects that among 10 boys who had <2 rooms in the house, all had pediculosis. Among 93 boys who had 2-4 rooms, 70(60.9%) had pediculosis and 23(20%) had no pediculosis. Among 12 boys who had >4 rooms, 11(9.6%) had pediculosis and 1(0.8%) had no pediculosis. Among 5 girls who had <2 rooms in the house, all had pediculosis. Among 103 girls who had 2-4 rooms, 83(72.2%) had pediculosis and 20(17.4%) had no pediculosis. Among 7 girls who had >4 rooms, all had pediculosis.

Table depicts that among 84 boys who had good personal hygiene, 67(58.2%) had pediculosis and 17 (14.8%) had no pediculosis. Among 31 boys who had poor personal hygiene, 24(20.9%) had pediculosis and 7(6.1%) had no pediculosis. Among 97 girls who had good personal Hygiene, 80(69.5%.) had pediculosis and 17(14.8%) had no pediculosis. Among 18 girls who had poor personal hygiene, 15(13.1%) had pediculosis and 3 (2.6%) had no pediculous. Table shows that among 78 boys who had good hygiene practices, 60(52.2%) had pediculosis and 18(15.6%) had no pediculosis. Among 37 boys who had poor hygiene practices, 31(26.9%) had pediculosis and 6(5.3%) had no pediculosis. Among 102 girls who had good hygiene practices. 84(73%) had pediculosis and 18(15.7%) had no pediculosis. Among 13 girls who had poor hygiene practices, 11(9.6%) had pediculosis and 2(1.7%) had no pediculosis.

Table 4: Factors responsible for Pediculosis among children

Boys	**Yes**	**No**	**Total**	**Girls**	**Yes**	**No**	**Total**
Mother education				**Mother education**			
Illiterate	81	19	100	Illiterate	83	16	99
Literate	10	05	15	Literate	12	4	16
Total	91	24	115	Total	95	20	115
Father education				**Father education**			
Illiterate	79	19	98	Illiterate	83	17	100
Literate	12	5	17	Literate	12	03	15
Total	91	24	115	Total	95	20	115
Family size				**Family size**			
< 4	30	6	36	< 4	24	3	27
> 4	61	18	79	> 4	71	17	88
Total	91	24	115	Total	95	20	115
No.Of Rooms				**No.Of Rooms**			
<2	10	0	10	<2	5	0	5
2-4	70	23	93	2-4	83	20	103
>4	11	1	12	>4	7	0	7
Total	91	24	115	Total	95	20	115
Personal Hygiene				**Personal Hygiene**			
Good	67	17	84	Good	80	17	97
Poor	24	7	31	Poor	15	3	18
Total	91	24	115	Total	95	20	115
Hygiene Practices				**Hygiene Practices**			
Good	60	18	78	Good	84	18	102
Poor	31	6	37	Poor	11	2	13
Total	91	24	115	Total	95	20	115

DISCUSSION

Pediculosis is a major public health problem among the primary school children which can affect their school regularity and performance. There are many factors responsible for the pediculosis along with curtailed socioeconomic status, limited water consumption and insufficient health care system. This study was carried out at Zarghon Town, Quetta to assess the prevalence of pediculosis among primary school children and tried to identify the factors responsible for pediculosis. To obtain better results total 230 children (115 boys and 115 girls) were included in the study. Study revealed that major proportion of children was more than 8 years old while the study conducted in Quetta city by Saddozai and colleagues (2008) showed that majority of the

children were upto 8 years old[12]. Mother literacy cannot be unnoticed as it plays a significant role in improving the hygiene of their children. It was very discouraging that only 13.1% mothers of boys and 13.9% mothers of girls were above matric while remaining proportion was matric and below. This corresponds to the findings of the study undertaken by Vahabi and coworkers (2013) who reported that only 10% mothers were Matric and above while 90% were matric and below[13]. Mother Profession is also associated with hygiene practices of their children because professionally active mothers are more aware owing to their social contact and have better knowledge. Study disclosed that mainstream of boys (81.7%) and girls (84.3%) mothers were housewives. The results of our study are comparable with the study carried out by Vahabi el al (2012) who confirmed that 94.7% mothers were housewives[14]. Overcrowding is a leading cause of pediculosis and is evident from study that majority of boys and girls were living in extended family system. Study further disclosed that mainstream 68.7% and 76.5% of boys and girls respectively had more than 4 family members. The results of our study are better than the study conducted by Magalhaes and associates (2011) who reported that 98.3% children had more than 4 family members[15]. In our study we could not see any association between the family type and family members. Personal hygiene is one of the leading factors that prevent children from numerous diseases like pediculosis and scabies. Study showed that majority of boys and girls had clean clothes, clean skin, nail cut and clean but better hygiene practices were observed among girls. It is important to mention that major proportion of both boys and girls washed their hands before meal and after using toilets but better practices were observed among girls. Study also revealed that most of boys (60%) and girls (50.4%) took bath twice a week. While the study done by Tappeh and teammates (2012) confirmed that 40.4% primary school children took bath twice a week[16]. Bed sharing could be a leading cause of pediculosis. It is pertinent to mention that majority of children shared bed with siblings/ parents and others. Like sharing of bed, other articles namely scarves, towels, clothing's, veils, head ribbons are also responsible for prevalence of pediculosis. Study revealed that 95.7% boys and 96.5% girls shared these articles. The study conducted by vahabi et al. (2012) revealed better results as well as association between sharing of objects pediculosis[15]. It is apparent that in schools, teachers plat their vital role in improving personal hygiene of children that help in preventing from pediculosis. Study showed very encouraging results that majority of the teachers checked their students hair and hands and nail weekly while uniform and shoes daily. It is worth-mentioning here that all boys and girls were checked by their teachers for hair, hand nails and uniform and parents of those children were informed who had pediculosis. Study disclosed that majority of children had pediculosis whose parents were illiterate, who had 2-4 rooms and pets. The children who shared bed: and articles, majority had pediculosis.

CONCLUSION

It is concluded that;

1. Majority of children was more than 8 years old.
2. Main stream of the boys and girls were living in extended family system
3. Sociocultural and Economic status of the community be improved and hygiene concepts and practices be promoted .
4. Awareness program and mother education should be encouraged.

RECOMMENDATIONS

- Pets should be avoided in the house, if not. then proper arrangements should be made to keep them, away from the children.
- Mothers should be more vigilant about personal hygiene of their children to protect them from pediculosis.
- Children must be educated about hand washing practices before meal and after using toilet at school and homes.
- Mother should ensure daily bath of their children to keep children healthy.
- Sharing of bed among children and other articles namely combs, scarves ,towels and head ribbons etc. should be avoided lo prevent them from pediculosis .
- Teacher should pay more attention on personal hygiene of students. In this association, weekly meeting should be arranged with parents.
- Health education programs should be held at community level to locate parents and children about ill effects of pediculosis.

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