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The Prevalence of Pediculosis and Treatment Needs among the School Children of Age 8-12 Years in Selected Rural Schools of Indore with a View to Develop Health Education Module

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ABSTRACT

Background: Head and body lice (pediculus humans) are similar in appearance, but the head louse is often smaller in size. While, pubic lice (pthirus pubis), are quite distinctive. They have shorter bodies and a pincher-like claw, which makes them look like crabs. However, the most common symptom of lice infestation is itching. **Materials and Methods.** The study originated with a sample of 150 children for explicating prevalence and knowledge of pediculosis among school children with ages from 8-12 years. The study objectives were: - **1-** assessing the school children's knowledge regarding pediculosis. **2-** Determining the scalp status for the prevalence of pediculosis among studied subjects. **3-**Determine the association between pediculosis and the studied subject's demographic variables. **4-** Determine the treatment needed for pediculosis. **5-** Developing a health education module needed. This is a descriptive survey approach and the design was a descriptive cross-sectional study. Which was found to be appropriate for assessing pediculosis prevalence and knowledge among the studied subjects, utilizing stratified random sampling technique. The study was conducted in selected schools of Indore. All children between the age of 8-12 years from a selected area of Indore constitute the target population for the study. **Results:** Current results showed that mean of knowledge among studied children was **57.2%**. As well as it was detected that, moderate knowledge regarding pediculosis and there is a significant association between pediculosis knowledge with studied children's age. Prevalence of pediculosis was noticed among 54.6% and this put a flashlight regarding treatment needs among children school. The treatment proportion that needs to be identified among studied children was **20.7%** for scalp hygiene, 67.1% for a recommendation of OTC, and 12.2% for special treatments. **Conclusion:** it can be concluded that depicted that, schoolchildren were having moderate knowledge about pediculosis prevention. As well based on the findings, a health education module was developed to enhance the children's awareness about pediculosis.

Keywords: Assess, Prevalence, Pediculosis, Treatment, Schoolchildren

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1. INTRODUCTION

Hair is vitally personal to children, they weep vigorously when it is cut for the first time; no matter how it grows, bushy, straight, or curly, they feel they are being shorn of a part of their personality. Children are more common to develop skin diseases by contact between classmates is an important cause of skin infection and infestation among school children⁽¹⁾. The three major lice that infest humans are pediculus humanus capitis (head lice), Phthirus pubis (crab lice), and pediculus humanus corporis (body lice)⁽²⁾. The head louse is a parasitic arthropod with incomplete metamorphosis. Among the three types of human lice, i.e. head, body, and pubic lice⁽³⁾, head lice were the first identified species in humans⁽⁴⁾. Human lice cannot survive long away from their host⁽⁵⁾. Infestation with pediculosis capitis or head lice is a common health problem that most commonly involved children between 5 and 13 years old^(6,7). It is the most common parasitic infection of children⁽⁸⁾.

However, head lice can be transmitted through either direct (head-to-head) contact with the infested person or contact with his/her personal items such as comb, hairbrush, hat, scarf, bedding, and towels. While, body lice are spread through direct contact with body, clothing or other personal items of a person which already causes lice. On the other hand, pubic lice are most often spread by intimate contact with an infested person. Head lice occur on the head hair, body lice on clothing, and pubic lice mainly on the hair near the groin. Each egg or "nit" may hatch one nymph that grows develop into an adult louse. Full-grown lice are about the sesame seed size. Lice feed on blood by skin piercing with their tiny needle-like mouthparts. Lice cannot burrow into the skin^(9,10,11).

Head and body lice (pediculus humans) are similar in appearance, but the head louse is often smaller in size. While, the pubic lice (phtirus pubis), are quite distinctive. They have shorter bodies and a pincher-like claw, which makes them look like crabs. As evidenced itching is the most common symptom of

lice infestation. As well, excessive scratching of the infested areas can cause sores, which finally may become infected. Moreover, body lice can be a vector for louse-borne typhus, louse-borne relapsing fever, or trench fever. However, hair and body lice are usually treated with medicated shampoos or cream rinses. Otherwise, nit combs can be used for lice and nits removal from hair. Thus, clothes laundering is needed for high heat to eliminate the body's lice. Efforts to treat should focus on the hair or body (or clothes), and not on the home environment⁽⁹⁾. Furthermore, inadequate knowledge of family members, health workers, and school staff about louse infestation may have psychological effects on the patients, and also their family members and society⁽¹²⁾. Health education is essential to enhance public knowledge about the preventability of pediculosis⁽⁹⁾.

2. MATERIALS AND METHODS

Given the selected, problem nature for the study and objectives to be accomplished evaluative research for the current study. This study approach was descriptive survey and design, of descriptive cross-sectional was found to be appropriate to assess the prevalence and knowledge on pediculosis among school children age group from 8-12 years.

All the school children within the age group between 8-12 years from selected schools under the study area of Indore constituted the target population for the study. This setting was chosen on basis of the investigator's feasibility, in terms of availability and accessibility of the school children.

The sampling technique was stratified random sampling. It was found to be the most suitable and easy means for selecting a random sample consists an equal proportion of schoolchildren over the three age groups to get a complete representation of the population of all school children within the age of 8-12 years by reducing heterogeneity over the age.

The study originated with a sample of 150 children as a sample size for explicating the prevalence and knowledge regarding pediculosis among school children within 8-12 years of age.

3. RESULTS

The data are organized and presented in the following four sections.

Section-I

Description of demographic variables of studied school children

Table 3.1: Distribution of subjects by Age

N=150

Sl no	Age in Years	subjects N=150	Percent%
1	8-10	75	50.0
2	10-11	75	50.0

Distribution of studied children according to their age depicts that equal proportion is between their age group of 8-10 (50%) are of the age group 10-12years.

Table 3.2: Distribution of children by Sex

N=150

Sl no	Sex	No of subjects	Percent%
1	Female	63	42.0
2	male	87	58.0

Distribution of studied children according to their sex this table revealed that more than half of children (58.0%) were males and only (42%) females.

Table 3.3: Distribution of the children by religion

N=150

Sl no	Religion	No of subjects N=150	Percent%
1	Hindu	108	72.0
2	Muslim	32	21.4
3	Christian	10	6.6

Distribution of studied children according to their religion, it was detected that high percentage of children (72%) Hindus, and (21.4%) Muslim as well as the lowest percentage of them were Christian (6.6%).

Table 3.4. Distribution of Schoolchildren by frequency of head wash

N=150

Sl no	Frequency of head wash	No of subjects	% Percentage
1	Daily	43	28.7
2	Alternate Days	49	32.7
3	Weekly	58	38.6

Distribution of studied children according to the frequency of their head wash it was observed that more than one-third of them (38.6%) weekly washed their head. While (32.7%) of them washed it alternate days and more than one quarter (28.7%) washed it daily.

Section – 2**Assessment of knowledge of school studied children regarding pediculosis**

Table.3.5: Frequency and percent of studied children according to the level of knowledge regarding pediculosis.

Level of knowledge	<u>Respondents</u>	
	Number	%
• Inadequate • (< 50%)	54	35.8
• Moderate (50-75%)	96	64.2
• Adequate (> 75%)	-	-
Combined	150	100

Table. 3.5 depicts that 35.8 % (54) of studied children have inadequate knowledge regarding pediculosis. While, 64.2 % (96) having a moderate level of knowledge, as well as none of them, was achieved to the adequate level of knowledge.

Section – 3**Association between pediculosis knowledge and studied children demographic characters.**Table 3.6 : Association between knowledge regarding pediculosis among studied children and their demographic characters.
N = 150

S. No.	Demographic characters	Knowledge on pediculosis				Chi-square value	df	P-value
		≤median		> median				
		No. (95)	%	No. (55)	%			
1.	<u>Age (yrs)</u>					24.14*	1	P<0.05
	-8-10	62	44.3	13	14.5			
	-10-12	33	35.7	42	29.1			
2.	<u>Sex</u>					12.02*	1	P<0.05
	Male	45	47.4	42	76.3			
	Female	50	52.6	13	23.7			
3.	<u>Religion</u>					26.34*	1	P<0.05
	Hindu	82	86.4	26	47.3			
	Others	13	13.6	29	52.7			
4.	<u>Type of family</u>					4.261 ^{NS}	2	P>0.05
	Joint	26	27.4	31	56.4			
	Nuclear	62	65.3	19	34.5			
	Others	7	7.3	5	9.1			
5.	<u>Mothers education</u>					0.013 ^{NS}	2	P>0.05
	Illiterate	25	26.4	13	23.7			
	Literates	70	73.6	42	76.3			
5.	<u>Fathers education</u>					2.79 ^{NS}	2	P>0.05
	Illiterate	6	26.4	8	23.7			
	Literates	89	73.6	47	76.3			
6.	<u>Mothers occupation</u>					8.692*	2	P<0.05
	Working	15	15.8	21	38.2			
	House wife	26	27.4	16	29.1			
	Others	54	56.8	18	32.7			
8.	<u>Fathers occupation</u>					9.412*	2	P<0.05
	Employed	51	53.7	43	78.2			
	Unemployed	13	13.7	5	9.1			
	Others	31	32.6	7	12.7			
9.	<u>No. of children</u>					9.462*	2	P<0.05
	One	34	35.8	33	60.0			
	Two	43	45.3	16	29.1			
	Three and above	18	18.9	6	10.9			
10.	<u>Frequency of head wash</u>					14.62*	2	P<0.05
	Daily	18	18.9	25	45.5			
	Alternate days	38	40.0	11	20.0			
	Weekly	39	41.0	19	34.5			

Note: ‘*’ – Significant at 5% level, i.e., P<0.05, ‘NS’ – Not significant at 5% level i.e., P>0.05.

The above table represents the association between knowledge and demographic characters of studied children. Chi-square test was carried out to determine the association between knowledge and socio-demographic characters as age, sex, religion, family type, mothers and fathers education, as well as occupation, children's birth order, no. of children in the age group of 8-12 years, total family

members, monthly income and frequency of head wash. Based on the current characters, age ($\chi^2=16.69$, df=2), sex ($\chi^2=12.02$, df=1), religion ($\chi^2=26.34$, df=1), mothers and fathers occupation ($\chi^2=8.692$, df=2), & ($\chi^2=9.412$, df=2) respectively. As well as children number of the age group of 8-12 years ($\chi^2=9.462$, df=2). Furthermore, the head wash frequency ($\chi^2=14.62$, df=2) was detected to be significant at a 5% level (P<0.05). The rest of the variables were not statistically significant.

Section-4**Prevalence of Pediculosis among studied children****Table 3.7. Prevalence of pediculosis among studied children.**

SL No	Pediculosis	No.	%
1	Present	82	54.6
2	Absent	68	45.4
Total		150	100.0

The above table presents the prevalence of pediculosis among the studied children. As 54.6%(82) of studied children were suffering from pediculosis problem and 45.4% (68) not suffering from it.

Table 3.8 Distribution studied children and the treatment needs

Treatment need	<u>Requiring treatment</u>	
	No. (82)	%
• Scalp hygiene	17	20.7
• Recommended for OTC	55	67.1
• Special treatment	10	12.2

The above table shows the studied children distribution and their treatment needs. It was observed that 20.7%(17) were needed for scalp hygiene, 67.1% (55) were recommended for OTC and only 12.2% (10) were needed for some special treatment.

Table 3.9. Status of pediculosis among studied children over selected demographic variables

Demographic Characteristics	Sample size (150)	Prevalence of pediculosis				χ^2	Df	P-value
		Presence		Absence				
		No(82)	%	No (68)	%			
1. Age	75	60	73.1	15	22.1	38.85*	1	P<0.05
8-10 Years	75	22	26.9	53	77.9			
10-12 years								
2. Sex	87	30	36.6	57	83.8	34.05*	1	P<0.05
Male	63	52	63.4	11	16.2			
Female								
3. Religion	108	56	68.3	52	76.5	1.23NS	1	P>0.05
Hindu	42	26	31.7	16	23.5			
Others								
4. family type.	57	49	59.7	8	11.7	0.043NS	2	P>0.05
Joint	81	33	40.3	48	70.6			
Nuclear others	12	-	-	12	17.6			
5. Mother's educations	38	35	42.7	3	4.4	28.78*	1	P<0.05
Illiterate	112	47	57.3	65	95.6			
literate								
6. Father's education	14	12	14.6	2	2.9	6.01*	1	P<0.05
Illiterate	136	70	85.4	66	97.1			
literate								
7. Mother's occupation	36	4	4.8	32	47.1	21.95*	2	P<0.05
Working	42	26	31.7	16	23.5			
Housewife Others	72	52	63.5	20	29.4			
8. Father's occupation	94	36	43.9	58	85.3	23.16*	2	P<0.05
Employed	18	12	14.6	6	8.8			
Unemployed Others	38	34	41.5	4	5.9			
9. No. of children	67	15	18.3	52	76.5	17.39*	2	P<0.05
1	59	48	58.5	11	16.2			
2	24	19	23.2	5	7.3			
10. Frequency of head wash	43	8	9.7	35	51.5	59.796*	2	P<0.05
Daily	49	20	24.4	29	42.6			
Alternate Weekly	58	54	65.9	4	5.9			

Note: '**' – Significant at 5% level, i.e., P<0.05, 'NS' – Not significant at 5% level i.e., P>0.05.

The above table reflecting the prevalence of pediculosis over the subjects' socio-demographic characters. It was noticed that 73.1% (60) of subjects in the aged group of 8-10 years and 63.4%(52) of the female children. As well as 68.3%(56) of subject belong to the Hindu religion and 42.7%(35) of them their mothers were illiterate. While 14.6% (12) of them their fathers were illiterate and 63.5%(52) of children their mothers were housewife and working.

Otherwise, it was detected that 41.5.%(34) of studied children their fathers were engaged in an occupation as well as some of the fathers employed and unemployed. **Furthermore**, only 23.2% (19) of children found to be with third order, and 65.9%(54) of them were weekly once head wash had pediculosis prevalence.

4. DISCUSSION

One of the most important indicators of developed countries is the level of health and well-being of their people⁽¹³⁾. Protecting children's health includes the growth and development of the country and has been considered a great investment in its economic growth and political stability⁽¹⁴⁾. Head lice contamination is common worldwide and has been proposed as a major health problem not only in poor countries but also in developed and industrial countries⁽¹⁵⁾. The pattern of skin diseases in India is influenced by the developing economy, social backwardness, level of literacy, varied climate, industrialization, access to primary health care, and different religious, ritual, and cultural factors⁽¹⁶⁾.

4.1 First study objective was to assess the knowledge of school children regarding pediculosis.

The findings of the current study revealed that school children have little knowledge regarding pediculosis with a mean of **12.6** over the anticipated score of 22 and the mean score was 57.2%. This may be due to a lack of awareness regarding the health status of the scalp. Consequently, most of the school children were not insisted regarding the scalp health either by their parents or teachers.

4.2 Second study objective was to determine the status of pediculosis among school children of age group between 8-12 years.

The findings of this present study showed that out of 150 school children samples, the prevalence of pediculosis was detected among 54.6% (82) and not for 45.4% (68) of them. On the other hand, 20.7% (17) of were required scalp hygiene, 67.1% (55) require recommended for OTC and only 12.2%(10) were detected as required special treatment.

4.3 Third study objective was to determine the association between pediculosis and demographic variables of studied children.

The study found a significant association between pediculosis knowledge and socio-demographic characters of subjects such as age, sex, religion, family type, mothers knowledge, mothers occupation, fathers education, fathers occupation, children 's birth order, no. of children among an aged

group of 8-12 years, total family members, monthly income and frequency of washing their head. Of these characters, age ($\chi^2 =16.69$, $df=2$), sex ($\chi^2 =12.02$, $df=1$), religion ($\chi^2 =26.34$, $df=1$), mothers occupation ($\chi^2 =8.692$, $df=2$), fathers occupation ($\chi^2 =9.412$, $df=2$), number of children among age of 8-12 years ($\chi^2 =9.462$, $df=2$) and frequency of head washing ($\chi^2 =14.62$, $df=2$) were noticed as significant at 5% level (.ie $P<0.05$). While the rest of the variables was not statistically significant ($P>0.05$).

4.4 Fourth study objective was to determine the treatment needed for pediculosis

The present study showed that out of 150 studied school children, the prevalence of pediculosis was noticed among more than half of the 54.6% (82) and not among 45.4% (68). As well as it was noticed that, with pediculosis, 20.7% (17) were required scalp hygiene, 67.1% (55) require recommended for OTC and 12.2%(10) only required special treatment.

4.5 Fifth study objective was developing the health education module

The findings of the current study depict that school child with a moderate level of knowledge regarding pediculosis prevention. Based on the findings, a health education module was developed to enhance the school children's awareness.

Conclusion

Since head louse infestation is a common problem among school-going children both parents and teachers along with the students should be taught how to recognize this infestation. Also, school health teams should be responsible for the prevention and treatment of louse infestation besides carrying our other school health services and functions.

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