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Personal hygiene practices and related skin diseases among primary school children of urban poor locality

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ABSTRACT

Background: Government of India has launched 'Swachh Bharat Swachh Vidyalaya' initiative in 2014, with emphasis on promoting safe and hygiene practices among school children. Providing easy access to hygiene and health education regarding personal hygiene is a simple and cost effective tool for prevention and control of hygiene related health problems including skin diseases. Objectives of the study were to assess the personal hygiene practices of primary school children and to find out the skin diseases related to personal hygiene practices.

Methods: The study was conducted among 12 primary schools in an urban poor locality. The availability of hygiene facilities in all the schools was noted. The hygiene practices among the children were collected using pre-designed, semi-structured proforma and clinical examination was done to find out skin diseases among them. Subsequently, all school children were given health education regarding correct hygiene practices. The data was analysed using mean, percentages and Chi-square test.

Results: The study included 1404 students. Among them 40.7% took bath daily, 53.7% were washed undergarments, uniform and socks daily, 56.5% had trimmed nails and 76.7% washed hands with soap and water before eating and after using toilet. On examination, 475 (33.8%) had skin diseases like pityriasis alba (13.2%), pediculosis capitis (12.3%), pyoderma (4.6%) and others. There was significant association between skin diseases and hygiene practices (p<0.001).

Conclusions: Improper hygiene practices were associated with skin diseases. Therefore, regular social and behavioural change communication activities on hygiene practices has to be imparted for school children to prevent related skin diseases.

Keywords: Personal hygiene, Practices, Skin diseases, School children, Urban poor

INTRODUCTION

Infectious diseases still remain as a major public health problem worldwide; especially among school children.¹ The burden is more in developing countries especially in the urban slums and rural areas, affecting millions of children, as a result of improper hygienic conditions and

practices.² This leads to needless suffering from infectious diseases, despite being preventable. There is an increasing evidence to show that good hygiene practice in the home and school has an important role in preventing the spread of these infections. According to World Health Organization (WHO) the safe water, sanitation and hygiene (WASH) has the potential to prevent at least

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9.1% of the global disease burden and 6.3% of all deaths. WASH is critical in the prevention and care of all the 17 neglected tropical diseases (NTDs) scheduled for intensified control or elimination by 2030. Therefore, WASH is a global strategy for accelerating and sustaining progress on eliminating NTDs. 4.5

Hygiene refers to conditions and practices that help to maintain health and prevent the spread of diseases. Likewise, personal hygiene refers to the comprehensive cleaning and caring of the body which includes bathing, washing hands, brushing teeth and wearing clean clothes. These good hygiene practices can reduce the incidence of diseases such as diarrhoea-related diseases, pneumonia, trachoma, scabies, skin, eye infections, etc. Therefore, maintaining good personal hygiene is necessary for physical, mental and social well-being. 6

In developing countries, improper personal hygiene practices and unhygienic living conditions favour person-to-person transmission of infection and is an important factor for higher incidence of these diseases among school children, where they will have contact with other students. Likewise, infection and malnutrition form a vicious cycle leading to decrease in the child's attendance and performance, ending in retardation of the child's overall development. Therefore, the high burden of communicable diseases among school children due to poor personal hygiene practices still remains a threat to the public health in developing countries.⁷

The major health problems faced by these school children are anaemia, malnutrition, infectious diseases, intestinal parasitosis, dental carries and diseases of eyes, ears and skin. Skin diseases are one of the commonest problems which include pediculosis, impetigo, pityriasis alba, scabies, tinea versicolor, seborrhea, allergy, viral warts and pyoderma. 9

Water, sanitation and hygiene play an important role in sustainable development and have broad public health benefits that reduce many diseases and in turn contribute to non-disease outcomes such as better school attendance. In this background, Government of India, launched 'Swachh Bharat Swachh Vidyalaya' initiative in 2014, with emphasis on promoting safe and hygiene practices among school children; emphasising, hygiene as the first step towards ensuring a healthy physical and learning environment in schools. Deducation and communication are important components of promoting hygiene and key to promote behavioural change within schools and communities by motivating, informing and educating children about good hygiene practices.

The present study was conducted among primary school children of urban poor locality, to know their hygiene practices and to find out the skin diseases associated with it. Subsequently, basic knowledge regarding correct hygiene practices was provided to motivate them to practice personal hygiene both in the school as well as in the house/community.

METHODS

The present study was initiated after getting the Institutional Ethical Committee clearance and was carried out for a period of 6 months (September 2016 - February 2017). The school authorities were briefed regarding the purpose of the study and written permission was taken from them. The study was conducted in all the primary schools of urban poor locality which comes under the community practice area of the Department of Community Medicine, Kempegowda Institute of Medical Sciences (KIMS), Bangalore, India.

All the schools and their premises were observed to find out the availability of water, sanitation & hygiene facilities and were recorded. In each school, with the help of class teacher, the hygiene practices followed by each child was asked in detail and the data was collected using a pre-designed, semi-structured proforma which was pilot tested in a rural primary school. The clinical examination was done by the researcher who has been trained and worked as a resident in the department of Dermatology and all the skin diseases present among the study subjects were recorded. Subsequently, all the school children and the teachers were given health education regarding correct hygiene practices using a laptop by power point presentation in each of the class.

The obtained data from the study was entered into a Microsoft excel sheet and analysed using mean & percentages; chi-square test was used to find out the association between hygiene practices and skin diseases among the school children.

RESULTS

The present study was conducted among 12 primary schools; six government and six private. The total numbers of children studied were 1404 students. Among these children, 732 (52.1%) were boys & 672 (47.9%) were girls. Majority of the children i.e., 1124 (80.1%) belonged to lower-middle class of socioeconomic status as per modified Kuppuswamy's classification based on their records available in the school.

All the 12 schools (both government and private schools) had drinking water facility, hand washing and sanitary toilet facility. Only 3 private schools (25.0%) had soap/liquid for hand washing.

All the children were interviewed regarding their personal hygiene practices. Among them, 572 (40.7%) took bath daily, 642 (45.7%) brushed their teeth twice daily, 754 (53.7%) were washed undergarments, uniform and socks daily, 485 (34.5%) had their personal towel, 228 (16.2%) had their personal comb, 793 (56.5%) used to clean and trim their nails regularly. Only 1077 (76.7%)

practiced hand washing with soap and water before eating and after using toilet. 898 (64.0%) used to wash their hands after wearing / removing shoes, 959 (68.3%) used to wash their hands after throwing waste and only 990

(70.5%) used to walk with footwear in the domestic environment. Among the study subjects, 183 (13.0%) used to play in mud and dirty water and 160 (11.4%) used to play with their pet animal (Table 1).

Table 1: Personal hygiene practices among the school children (n=1404).

Personal hygiene practices	Boys	Girls	Total
	N (%)	N (%)	N (%)
Take bath daily	264 (18.8)	308 (21.9)	572 (40.7)
Brush teeth twice daily	311 (22.2)	331 (23.6)	642 (45.7)
Wear washed undergarments, uniform and socks daily	355 (25.3)	399 (28.4)	754 (53.7)
Has personal towel	247 (17.6)	238 (17.0)	485 (34.5)
Has personal comb	125 (08.9)	103 (07.3)	228 (16.2)
Clean and trim nails regularly	400 (28.5)	393 (28.0)	793 (56.5)
Wash hands after wearing / removing shoes	476 (33.9)	422 (30.1)	898 (64.0)
Wash hands after throwing waste	511 (36.4)	448 (31.9)	959 (68.3)
Wash hands with soap and water before eating and after using toilet	552 (39.3)	525 (37.4)	1077 (76.7)
Walk with footwear	506 (36.0)	484 (34.5)	990 (70.5)
Play in mud and dirty water	116 (08.3)	67 (04.8)	183 (13.0)
Play with pet animal at home	096 (06.8)	64 (04.6)	160 (11.4)

Figures in parentheses indicates percentages.

Table 2: Skin diseases among the school children (n=1404).

Skin diseases	Boys	Girls	Total
	N (%)	N (%)	N (%)
Pityriasis alba	115 (8.2)	71 (05.1)	186 (13.2)
Pediculosis capitis	25 (1.8)	147 (10.5)	172 (12.3)
Pyoderma	39 (2.8)	26 (01.9)	65 (04.6)
Seborrhoeic dermatitis	16 (1.1)	24 (01.7)	40 (02.8)
Tinea corporis	21 (1.5)	11 (0.8)	32 (02.3)
Scabies	17 (1.2)	11 (0.8)	28 (02.0)
Molluscum contagiosa	15 (1.1)	9 (0.6)	24 (01.7)
Warts	12 (0.9)	11 (0.8)	23 (01.6)
Eczema	11 (0.8)	8 (0.6)	19 (01.4)
Miliaria	6 (0.4)	3 (0.2)	9 (0.6)
Insect bite allergy	4 (0.3)	3 (0.2)	7 (0.5)

Figures in parentheses indicates percentages.

Table 3: Association between personal hygiene practices and skin diseases (n=1404)

Personal hygiene practices		Skin disease		χ² value
		Present	Absent	P value
Take bath daily	Yes	165	407	10.72, <0.01
	No	310	522	
Wear washed uniform/clothes daily	Yes	218	536	17.6, <0.01
	No	257	393	
Walk without footwear	Yes	182	232	26.91, <0.01
	No	293	697	
Play in mud and dirty water	Yes	99	84	38.61, <0.01
	No	376	845	
Has personal towel	Yes	337	148	33.36, <0.01
	No	138	781	
Has personal comb	Yes	94	134	06.65, <0.01
	No	381	795	

Continued.

Personal hygiene practices	Skin disease		χ² value	
		Present	Absent	P value
Clean and trim nails regularly	Yes	307	486	19.40, <0.01
	No	168	443	
Wash hands before eating and after using toilet	Yes	389	688	10.80,<0.01
	No	86	241	
Wash hands after wearing /removing shoes	Yes	253	645	35.63,<0.01
	No	222	284	
Wash hands after throwing waste	Yes	348	611	08.15,<0.01
	No	127	318	

On clinical examination, 475 (33.8%) children had one or more skin diseases and it was more among girls i.e., 244 (36.3%) as compared to boys 231(31.5%). The common skin diseases present among these children were pityriasis alba (13.2%), pediculosis capitis (12.3%), scabies (2.0%), tinea corporis (2.3%), pyoderma (4.6%), molluscum contagiosum (1.7%), warts (1.6%), seborrhoeic dermatitis (2.8%), eczema (1.4%) and miliaria (0.6%) (Table 2).

There was significant association between some of the skin diseases and personal hygiene practices (p<0.01) such as hand washing, daily bathing, wearing clean clothes, trimmed & clean nails, walking without footwear, playing in mud and dirty water and others (Table 3).

DISCUSSION

Hygiene is aimed at nurturing good practices by providing clean water, basic toilets and educating good hygiene practices, which are essential for the survival and development of children. Access to safe water and sanitation facilities will necessarily lead to improved health, when it is utilised properly along with personal hygienic behaviour. It also enables children to become agents of change for improving water, sanitation and hygiene practices in their families and communities.

In India, school children constitute to about 25% of total population. 11 School is important for cognitive, creative and social development of children. Likewise, the school sanitation and hygiene education is necessary for the safe, secure and healthy environment to learn better and face the challenges of future life. 12 Providing easy access to hygiene, nutrition and health education services to school children is a simple and cost effective tool that can go a long way in the prevention and control of these diseases. Therefore, all school children should be taught about the importance of good hygiene; to keep themselves and others healthy. Similarly, availability and access to safe water and adequate sanitation both in school and the community can reduce illness, leading to improved reduction and socio-economic health, poverty development.

The present study showed that only 76.7% children washed their hands with soap and water before eating and after using toilet. Other studies done at different places also showed the similar findings with regards to hand washing practices. A study from Assam conducted among the 400 primary school children in the age group of 6-11 years showed that, 84.25% reported of washing their hands before eating and after using toilet with soap and water. 13 Another study on personal hygiene among primary school children living in a slum of Kolkata, India showed that 98 (94.23%) primary school children washed their hands after visiting toilet and 88 (84.62%) washed their hands before eating. 14 Other study amongst school children in a tribal area of Thane district, Maharashtra showed that only 55.31% of the study population regularly used soap for hand washing after visiting toilet and 62.4% of children before eating while at school.¹⁵ Similarly, a study from Lucknow conducted among the 800 school children in the age group of 6-12 years showed that, 87.5% children washed their hands after using toilet and 70% washed their hands before meal.¹⁶ All the above studies showed that, there is still an inadequacy in hand washing practices. Therefore, children has to be educated that, washing hands and keeping them clean is the first line of defence in protecting from illnesses. Cleaning hands before eating meals and after using bathroom/ toilet or coughing/ sneezing is a very simple and important practice, which should be always practiced at the school, home and in the community.

The present study also revealed that, only 40.7% of them took bath daily. Similarly, a study on personal hygiene among primary school children living in a slum of Kolkata, India showed that only 42.3% took bath daily. 14 On the contrary, a study from Assam conducted among the primary school children showed that, 80% of the school children practiced daily bath. 13 Similarly, another study conducted in Dehradun showed that, healthy habit like daily bathing was practiced only among 82.6%. 17 Likewise, a study done in Odisha, on association of personal hygiene with common morbidities among upper primary school children showed that, 81.1% children took bath daily. 18 In this regard, all the children has to be educated on taking daily bath using soap and water helps in washing away dirt and bacteria; thereby numerous

medical conditions such as skin and respiratory diseases can be avoided.

The present study also showed that only 56.5% used to clean and trim their nails regularly. Similarly, a study on personal hygiene among primary school children living in a slum of Kolkata, India showed that 76.92% trimmed theirnails.¹⁴ Another study from Puducherry amongst rural school children, showed that untrimmed and dirty nails were present in 42.2% of the children. 19 Other study in the state government funded residential Adivasiashram school, of village Mandwa, Maharastra also showed that, the point prevalence of cut nails was only 27.6%.²⁰ Similarly a study on morbidity pattern and personal hygiene among 450 private primary school children from Pune showed that untrimmed nails were seen in 44.7% of the children.²¹ All the above studies showed that, there is improper maintenance of nails, which can harbour microorganisms. Therefore, children have to be educated and motivated to clean & trim their nails regularly, which can avoid transmission of infections.

In the present study, only 53.7% children used to wear washed undergarments, uniform and socks daily. Similarly, a study from Assam conducted among the primary school children showed that, 47.2% children were found to change their clothes daily. 13 Similarly, a study in a state government funded residential Adivasiashram school, of village Mandwa, Maharastra, the point prevalence of wearing clean clothes was only 42.8%. ²⁰ Another cross sectional study carried out among 250 randomly selected school children aged 10 - 16 years from two schools in North Chennai on personal and household hygiene practices showed that, 76.4% students had healthy hygiene practices like brushing teeth, hand washing, bathing, trimming nails once a week, wearing washed clothes daily and drinking boiled water. Similarly, a study done in Mumbai among 512 school children in the age group of 8-9 years showed that, 62% of students used to wear washed undergarments and socks daily.²⁴ In this regard, children have to be motivated to practice good grooming practices as apart of personal hygiene; changing undergarments wearingclean pair of socks every day along with clean clothes can make child healthier and feel good about them.

In the present study, 33.8% of the children had one or more skin diseases. The common skin diseases were pityriasis alba (13.2%), pediculosis capitis (12.3%), scabies (2.0%), tinea corporis (2.3%), pyoderma (4.6%) and others. Similarly, a study from Assam conducted among the primary school children showed that, out of 400 school children examined, 24.3% suffered from various skin disorders, majority of them had scabies 21.7% followed by pityriasis 19.6%, pediculosis 18.5% and tinea infection 16%. Similarly, a study in a state government funded residential Adivasi ashram school, of village Mandwa, Maharashtra showed that the common skin morbidities were head lice (42.8%), scabies (36.6%)

and multiple boils (8.9%).20 A community based crosssectional study done amongst the school children in Hyderabad city also showed that scabies (16.9%) was the major skin infection followed by pediculosis (10.7%), acne vulgaris (10.2%) and seborrhic infection (9.8%). Other study conducted in Nagpur showed that 236 (32.1%) school children were found to suffer various skin disorders like pyodermain 21.1% of children, scabies among 5.6%, pediculosis capitis among 3.5% and fungal infections in 1.9% of the children. 26 Another crosssectional study on pattern of common skin conditions among school children in an urban area of a district in coastal Karnataka showed an overall prevalence of skin conditions in 63% of the study subjects, which included acne(38.0%) followed by pyoderma (34.0%), fungal infection (26.1%). Pityriasisversicolor (55.0%), tinea (48.0%), scabies (75.0%) and pediculosis $(20.0\%)^{27}$ Similarly, a cross-sectional study conducted among 1000 school children from rural area of Salem showed that pediculosiscapitis (21%) was the major skin infection followed by scabies (11%) and bacterial infections (8.5%).²⁸ All the above studies showed that a wide spectrum of skin diseases were common among the school children, which has to be addressed on a priority basis.

The present study also showed that, there was significant association between skin diseases and some of the personal hygiene practices (p<0.01) such as hand washing, daily bathing, wearing clean clothes, trimmed & clean nails, walk without footwear, playing in mud & dirty water and others. Similarly, across sectional study conducted at a community school in the tribal area of Yercaud in Tamil Nadu, including 923 children showed that 64.6% children had dermatologic manifestations and there was highly statistically significant association of skin diseases with poor hygiene (78.4%) such as those who did not bath daily (70.0%) and who did not wear washed clothes daily (69.1%).29 Another study done in Odisha, on association of personal hygiene with common morbidities among upper primary school children showed that fungal infections were significantly associated with poor personal hygiene.¹⁸ Likewise a study conducted among 184 primary school children of South Kolkata also showed significant association between personal hygiene scores and morbidity profile among the children.³⁰ Therefore, all the children should be educated regarding proper hygiene practices to prevent most of the skin diseases.

In conclusion, the hygiene practices among school children were inadequate and associated with many skin diseases. Therefore, regular health education on hygiene practices has to be imparted for all school children and the teachers from health care staff and media in order to prevent these skin diseases and make them healthy future citizens. Since, childhood is the best time for children to learn hygiene behaviours, as these become habits later and will remain permanent and unchanged. Similarly, children are the best to carry health education messages

to their families and friends, thereby facilitating overall community development and to attain health for all.

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