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Role of Environmental Factors and Hygiene in Skin Diseases

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Abstract

According to a study,skin pattern in a population is generally determined by different ecological and other factors.The vicious cycle of ignorance, poverty, and disease is still the bane of many developing countries and plays a prominent role in the prevalence of many skin diseases. The skin disease may be accompanied by great morbidity, disfigurement, and distress, leading to a major source of social stigma.The body is liable to various skin infections and it may hamper the physical well-being of the individual.Due to ignorance or lack of proper education, personal hygiene may not be taken care properly.The present study was conducted to find out the role of environmental and hygienic factors in common skin diseases.The present study was conducted to find out the socio-demographic factors associated with common skin diseases . This study was conducted in the field practice areas of the Urban and Rural Health Centres, Department of Community Medicine, Jawaharlal Nehru Medical College, Aligarh Muslim University, Aligarh,Uttar Pradesh.It was community based and cross-sectional study. The study period was one year i.e. from June 2016 to May 2017.

Inclusion criteria: All individuals of the household.

Exclusion Criteria: All who did not gave consent.

This study found the association of skin disorder prevalence with presence of dampness in the living environment of the population.This study reported that prevalence of skin diseases was significantly more in both urban and rural areas with poor personal hygiene, compared to the individuals having average and good personal hygiene. And this association is statistically significant for both areas.This study reported that quality of life of rural population was affected more with the distribution of skin diseases among them.

Key words:skin diseases, hygiene, ventilation, dampness,urban, rural

Introduction

Human skin may reflect the presence of systemic diseases in many different ways. An unusual skin eruption may be a clue to some internal disorder. [(1)]

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According to a study,[2] skin pattern in a population is generally determined by different ecological and other factors**.** The vicious cycle of ignorance, poverty, and disease is still the bane of many developing countries and plays a prominent role in the prevalence of many skin diseases. The skin disease may be accompanied by great morbidity, disfigurement, and distress, leading to a major source of social stigma [3]**.** Although literature on specific skin disorders is very abundant, there are relatively few reports on the spectrum of skin diseases in various populations. In addition, most studies of the incidence and prevalence of skin diseases are based on hospital attendance and can provide a very crude indication of true prevalence and incidence in a community, as many social and economic factors affect the decision to seek medical advice[4]**.** The body is liable to various skin infections and it may hamper the physical well-being of the individual. Due to ignorance or lack of proper education, personal hygiene may not be taken care properly. [5] Skin diseases are one of the commonest problems which include pediculosis, impetigo, pityriasis alba, scabies, tinea versicolor, seborrhea, allergy, viral warts and pyoderma[11]**.**

The present study was conducted to find out the role of environmental and hygienic factors in common skin diseases .

Material and Methods

This study was conducted in the field practice areas of the Urban and Rural Health Centres, Department of Community Medicine, Jawaharlal Nehru Medical College, Aligarh Muslim University, Aligarh, Uttar Pradesh.It was

community based and cross- sectional study.The study period was one year i.e. from June 2016 to May 2017.

Inclusion criteria: All individuals of the household.

Exclusion Criteria: All who did not gave consent.

Sampling Method: Systematic random sampling with Population Proportionate to Size (PPS) was used to draw sample size.

Sample size calculation:

$n = Z^2p\ (100- p)/l^2$

$n = (1.96)^2\ p(100- p)/l^2$,

$n \sim 4pq/l^2$

$q = 100- p$

p = prevalence of common skin disease(s) found in the pilot study

The sample size was calculated on the basis of pilot study conducted on 50 household each in RHTC and UHTC. As per pilot study, the prevalence of common skin diseases in registered areas of RHTC and UHTC came out to be 20% and 17% respectively.

Sample size calculation:

$n = Z^2p\ (100- p)/l^2$

l=(absolute allowable error)=2% at 95% confidence interval

Substituting the values for **RHTC**

$(1.96)^2\ p(100- p)/l^2 = 4*\ 20(100- 20)/2^2 = 1600$

Substituting the values for **UHTC**

$(1.96)^2\ p(100- p)/l^2 = 4*\ 17(100- 17)/2^2 = 1411$

≈1420

Applying PPS for both RHTC and UHTC

- Data was entered and managed in SPSS-20 (Statistical Package of Social Science). For descriptive purpose frequency and percentage were used.
- To test associations chi square test, independent t test and one way ANOVA was applied.P value <0.05 was considered significant

Ethical clearance was obtained from ethical committee, JNMC, AMU, Aligarh. Date: 28-12-2015. Informed verbal consent was taken from each subject before interview(Copy of ethical committee is attached).

Prior permission was taken from Prof .A.Y Finlay through online and was given licence **for both DLQI and CDLQI**.

Licence ID CUQoL1454 for DLQI and CUQoL1455 for CDLQI

Impact of skin disease(s) on quality of life was assessed using respective **Children's Dermatological Life Quality Index(CDLQI) and Dermatological Life Quality Index(DLQI)** questionnaire for the age group 4-16yrs & > 16 years.

10 item questionnaire with response score range from 0(min) to 3(max) for each item.

Cumulative scoring for individual subject graded as

GRADE I 0-1 (NO EFFECT ON PATIENT LIFE)

GRADE II 2-5 (SMALL EFFECT ON PATIENT LIFE)

GRADE III 6-10 (MODERATE EFFECT ON PATIENT LIFE)

GRADE IV 11-20 (VERY LARGE EFFECT ON PATIENT LIFE)

GRADE V 21-30 (EXTREMELY LARGE EFFECT ON PATIENT LIFE)

Results

Table 1: Prevalence of skin diseases with dampness.

Dampness	Skin disease					
	Urban		Total N (%)	Rural		Total N (%)
	Present N (%)	Absent N (%)		Present N (%)	Absent N (%)	
Present	170(27.1)	458(72.9)	628(100)	233(39.6)	356(60.4)	589(100)
Absent	115(14.5)	677(85.5)	792(100)	195(19.3)	816(80.7)	1011(100)
Total	285(20.1)	1135(79.9)	1420(100)	428(26.8)	1172(73.2)	1600(100)
	$\chi2$=34.388; df=1; p <0.001			$\chi2$=78.047; df=1; p <0.001		

Table 2: Prevalence of skin diseases according to ventilation

Ventilation			Skin disease			
	Urban		Total N (%)	Rural		Total N (%)
	Present N (%)	Absent N (%)		Present N (%)	Absent N (%)	
Inadequate	202(25.1)	604(74.9)	806(100)	259(37.7)	428(62.3)	687(100)
Adequate	83(13.5)	531(86.5)	614(100)	169(18.5)	744(81.5)	913(100)
Total	285(20.1)	1135(79.9)	1420(100)	428(26.8)	1172(73.2)	1600(100)
$\chi2$=28.952; df=1; p<0.001				$\chi2$=73.674; df=1; p<0.001		

Table 3: Distribution of patients according to personal hygiene

Personal hygiene	Skin disease					
	Urban		Total N (%)	Rural		Total N (%)
	Present N (%)	Absent N (%)		Present N (%)	Absent N (%)	
Poor	61(50.8)	59(49.2)	120(100)	169(92.9)	13(7.1)	182(100)
Good	86(11.7)	651(88.3)	737(100)	135(12.1)	980(87.9)	1115(100)
Average	138(24.5)	425(75.5)	563(100)	124(40.9)	179(59.1)	303(100)
Total	285(20.1)	1135(79.9)	1420(100)	428(26.8)	1172(73.2)	1600(100)
$\chi 2$=110.140; df=2; p < 0.001				$\chi 2$=558.986; df=2; p <0.001		

Table 4: Distribution of diseased population with QoL Indices grade

QoL indices grade	Urban		Rural	
	N	%	N	%
Grade I	19	7.0	17	4.3
Grade II	131	48.5	127	32.3
Grade III	98	36.3	227	57.8
Grade IV	21	7.8	21	5.3
Grade V	1	0.4	01	0.3
Total	270	100	393	100

Table 5: Association of QoL indices score with age.

Age (Years)	Urban		Rural	
	Mean	S.D	Mean	S.D
6-10	4.39	2.14	4.52	2.59
11-18	5.59	3.13	5.84	3.21
19-30	6.24	3.59	6.51	3.13
31-40	5.88	4.44	6.43	2.47
41-50	5.00	1.86	6.73	3.66
51-60	6.50	4.56	7.48	3.16
>60	9.50	6.59	5.93	3.81
f = 2.953, df = 6, p = 0.008			f = 3.419, df = 6, p=0.003	

Discussion

Table 1 shows association of skin disorder prevalence with presence of dampness in the living environment of the population, and it was observed that in urban area, skin diseases were significantly higher i.e. 27.1 per cent individuals who lives in damp environment compared to 14.5 per cent in those who lives in damp proof conditions and was found significant with p <0.001. In rural area diseases were present in 39.6 percent of individuals living in damp environment, compared to only 19.3 per cent in those having no dampness in their houses. The association also comes out to be highly significant in rural area (p < 0.001).

Another study[6] revealed a prevalence rate of 8.0 and 7.0 per cent among those living in houses with dampness and no dampness respectively. Although the difference was statistically insignificant overall. Fungal infections were, however, significant more common among people living in damp houses (1.7 per cent) than in those living in houses without dampness (0.4 per cent). The difference was found to be statistically significant (X^2 = 30.655; D.f = 1).

Table 2 shows that, in the urban area, the prevalence of skin diseases i.e. 25.1 percent was more among the population living in inadequately ventilated houses in comparison to 13.5 per cent in population having adequate ventilation, showing a highly significant association (p < 0.001). In rural area also skin diseases were found to be more among population living in inadequately ventilated houses (37.7), which was highly significant (p =< 0.001).

This study [6] reported prevalence of skin diseases according to ventilation revealed a higher prevalence (7.7 per cent) among people living in inadequately ventilated houses, than among those (6.7 per cent) living in wellventilated houses. The difference was, however, statistically insignificant. Among acne, eczema scabies, bacterial, and fungal infections, significant association of bacterial infections, eczema, and scabies was observed with inadequate ventilation.

As far as personal hygiene is concerned (**table 3**), prevalence of skin diseases (i.e. 92.9 per cent in rural and 50.8 per cent in urban) was significantly more in both the areas with poor personal hygiene, compared to the individuals having average and good personal hygiene. And this association is statistically significant for both areas(p<0.001)

Another study[7] reported highly statistically significant association of skin diseases in children with poor hygiene 429 (78.4%), who did not bath daily 240(70%), who did not wear washed clothes daily 394 (69.1%), with previous skin infection 452 (75.7%) and skin diseases.

Infectious dermatoses were more (39.8%) among those who had not maintained personal hygiene than Non-Infectious group (28.7%) in another study[8]**.** Although these findings were not significant. They also observed that Infectious diseases were more common among those who had not got sufficient water (infectious-9.7%, non-infectious-8.2%) but this was also not significant.

This study[6] reported that of all the common skin diseases, an apparently significant association with poor personal hygiene was observed only in cases of scabies. A significant majority – 161 (92.5 per cent) cases of scabies had poor personal hygiene. Another study[12] 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[13], 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%). Another study done in Odisha[14], on association of personal hygiene with common morbidities among upper primary school children showed that fungal infections were significantly associated with poor personal hygiene. Likewise a study conducted among 184 primary school children of South Kolkata[15] also showed significant association between personal hygiene scores and morbidity profile among the children. Therefore, all the children should be educated

regarding proper hygiene practices to prevent most of the skin diseases.

Table 4 shows the diseased population distribution with different grades of QoL indices score and it can be seen that in the urban population most of the patients i.e. 48.5 per cent lie in grade II, having moderate effect of the skin disease on their quality of life. To follow were the patients in grade III (36.8 per cent), grade IV (7.8 per cent), grade I (7.0 per cent) and grade V (0.4 per cent).

In the rural population most of the patients i.e. 57.8 per cent lie in grade III, having large effect of the skin disease on their quality of life. Patients in grade II (32.3 per cent), grade IV (5.3 per cent), grade I (4.3 per cent), and grade V (0.4 per cent) were there to follow.

With this distribution of patients in the above table it shows that quality of life of rural population was affected more with the distribution of skin diseases among them.This study [8] found 35% patients had a moderate effect followed by very large effect 23.4%, small effect 20% and extremely large effect 8.3% on quality of life.This study [9] reported that 16% felt no effect of vitiligo on their quality of life while 84% patients reported small to very large effect on their quality of life. Out of 84%, 37% felt small effects, 21% felt moderate effect and rest 26% felt very large effect.

Table 5 shows that lowest mean QoL indices score in urban population i.e.4.39 ± 2.14 (Mean ± S.D) was observed for 6-10 years group and highest i.e. 9.50 ± 6.59 (Mean ± S.D) was observed in more than 60 years age group.. The difference of the mean between different age groups appeared to be significant. On further analysis by applying post hoc test, significance was observed between age groups i.e. 6-10 years compared to 11-18 years, 41-50 years and > 60 years. This shows that in urban area the patients of older age had poor quality of life as compared to younger ones.The mean of the rural area (table 25) was also found to be lowest i.e. 4.52 ± 2.59 (Mean ± S.D) in the age group 6-10 years but the highest QoL indices mean score i.e. 7.48 ± 3.16 (Mean ± S.D) was observed in the age group 51-60 years. The difference in the means of different age group came out be significant in rural population also. On post hoc test analysis the mean QoL indices score was found to be significantly less for 6-10 years group compared to 19-30 years, 31-40 years, 41-50 years, and 51-60 years age groups. This clearly depicts that there was significant moderate effect on quality of life of patients in the older age groups (most affected-51-60yr, followed by 41-50yr, 31-40yr, and 19-30yr) compared to the age group 6-10 years.This can be attributed to the fact that children are less bothered about their illness and looks compared to adults who are more sensitized for their looks and also concerned what others may think about skin problems they have.As far as variation of mean QoL indices with age is concerned in other studies, Mishra et al. [9] in their study on 100 patients of vitiligo did not find any significant correlation with age.Same was observed in another study [10] that age had no influence on the degree of impairment in patients affected with skin diseases in Saudi Arabia.

Conclusion

Health education regarding personal hygiene and oral hygiene should be given to the people.Regarding various morbidities among the school children, proper education and necessary support should be given by the class teachers. Socioeconomic factors are seen to play an essential role so proper approach in the community to improve the socioeconomic status as well as personal hygiene practice is necessary.

Conflict of interest: Nil

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References

1. Das KK. Pattern of dermatological diseases in gauhati medical college and hospital Guwahati, Indian. J Dermatol Venereol Leprol 2003; 69:16-18.
2. Rao GS, Kumar SS, Sandhya 2003; Pattern of skin diseases in an Indian village; Indian J Med Sci.;57(3):10810.
3. Onayemi O, Isezuo, and Njoku. Prevalence of skin conditions in north-western Nigeri; International Journal of Dermatology 2005; 44:7–11
4. Souissi A, Zeglaoui F, Zouari B, Kamoun MR. A study of skin diseases in Tunis. An analysis of 28,244 dermatological outpatient cases; Acta Dermatoven APA 2007; 16(3).
5. Talukdar K, Baruah R. Prevalence of Skin Infection and Personal Hygiene Practices Amongst Primary

School Children: A Community Based Cross Sectional Study in Kamrup (Rural) District of Assam. Int J Sci Stud 2015; 3(3):11-14.

6. Umar S. A Thesis Submitted to the Jawahal Lal Medical College, Aligarh Muslim University-Aligarh; An Epidemiological Study Of Skin Disorders Among Family Members Registered With Urban And Rural Health Training Centres, Department Of Preventive And Social Medicine, A.M.U. Aligarh 1984(unpublished).
7. Basti BD, Radhakrishnan S. Prevalence of dermatological manifestations among the tribal school children of South India Int J Community Med Public Health. 2016; 3(7):1957-1962.
8. Barot PA, Brahmbhatt NY, Ninama HV, KharadiDB, Malhotra SD. Quality of Life in Patients with Psoriasis at a Tertiary Care Teaching Hospital–A Cross Sectional Study.
9. Mishra N, Rastogi MK, Gahalaut P, Agrawal S. Dermatology Specific Quality of Life in Vitiligo Patients and Its Relation with Various Variables: A Hospital Based Cross-sectional Study. Journal of Clinical and Diagnostic Research : JCDR. 2014; 8(6):YC01-YC03.
10. Al-Hoqail IA. Impairment of Quality of Life among adults with skin disease in King Fahad Medical City, Saudi Arabia. Journal of Family & Community Medicine. 2009; 16(3):105-109.
11. Sethuraman, Gomathy, Bhari, Neetu. Common skin problems in children. Indian J Paed. 2014;81(4):381-90
12. Haradanahalli RS et al. Int J Community Med Public Health. 2019 Jun;6(6):2526-2532
13. Basti BD, Radhakrishnan S. Prevalence of dermatological manifestations among the tribal school children of South India. Int J Community Med Public Health. 2016;3:1957-62.
14. Paul KK, Panigrahi SK, Soodi Reddy AK, Sahu T. Association of personal hygiene with common morbidities among upper primary school children in rural Odisha. J Family Med Prim Care. 2017;6(3):509-12
15. Soumya D, Dutta S, Aparajita D, Misra R. Relationship of personal hygiene with nutrition and morbidity profile: A study among primary school children in south Kolkata. Indian J Community Med. 2010;35(2):280-4.