



SOCIO DEMOGRAPHIC FACTORS ASSOCIATED WITH COMMON SKIN DISEASES

Community Medicine

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ABSTRACT

Several studies showed that variation in frequency of skin diseases was dependent on age, gender and marital status of the patients. Most of the skin diseases were prevalent in married and elderly patient while only acne was prevalent in younger patients. It was also supported by a study showed that the people aged 20 to 29 were more susceptible to acne than others. Skin hygiene, particularly hands, is considered to be one of the primary mechanisms to reduce risk of infection. The present study was conducted to find out the association of socio-demographic and environmental factors associated with 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. In urban areas, the prevalence was found to be more among females. It is also depicted that with going higher up in the socioeconomic class of the population, the prevalence of skin diseases comes down. In this study we observed that in both rural and urban area the prevalence of skin diseases was highest in lowest socioeconomic class V. In the urban and rural area the prevalence of skin disease was more in the individuals living in kuchha houses.

KEYWORDS

skin diseases, religion, socio economic status, sex.

INTRODUCTION:

Skin diseases have a significant global impact on quality of life, mental health, and loss of income. The burden of dermatologic conditions and its relationship with socioeconomic status in Asia is currently not well understood. Skin and subcutaneous diseases contributed 1.79% to the global burden of disease (GBD) and were the fourth leading cause of nonfatal disease burden and disability in 2013 (1). There is a high burden of skin disease in Asia, which can cause a significant impact on the quality of life of the patients. To reduce this burden, interventions should be directed toward diseases causing the highest burden. Age, sex, gender, marital status as well as cultural activities could be risk factor for skin diseases. Role of sex on prevalence of autoimmune diseases like psoriasis has been reported (2). Several studies showed that variation in frequency of skin diseases was dependent on age, gender and marital status of the patients (3-5). Most of the skin diseases were prevalent in married and elderly patient while only acne was prevalent in younger patients. It was also supported by a study showed that the people aged 20 to 29 were more susceptible to acne than others (6). Bacterial skin infections or pyoderma are common in most developing countries arising as primary infections of the skin (impetigo) or secondary infections among adolescents (7,8). Nutrition is one of the most important parameters that are involved in modulating skin health and condition (9). Skin hygiene, particularly hands, is considered to be one of the primary mechanisms to reduce risk of infection (10).

The present study was conducted to find out the association of socio-demographic and environmental factors associated with 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:

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

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

$$n \sim 4pq / l^2$$

$$q = 100 - p$$

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:

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

$$l = (\text{absolute allowable error}) = 2\% \text{ at } 95\% \text{ confidence interval}$$

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

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

$$= 1411$$

$$\approx 1420$$

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. Informed verbal consent was taken from each subject before interview. Copy of ethical committee is attached.

RESULTS

Table 1: Distribution of patients according to religion.

Religion	Skin disease		Total N (%)	Rural		Total
	Urban			Present N (%)	Absent N (%)	
	Present N (%)	Absent N (%)				
Hindu	146(22.2)	512(77.8)	658(100)	282(24.1)	887(75.9)	1169(100)

Muslim	139(18.2)	623(81.8)	762(100)	146(33.9)	285(66.1)	431(100)
Total	285(20.1)	1135(79.9)	1420(100)	428(26.8)	1172(73.2)	1600(100)
$\chi^2=3.429$; df=1; p=0.064				$\chi^2=15.282$; df=1; p<0.001		

Table 2: Distribution of skin disease patients according to age group.

Age (Year s)	Skin diseases		Total N (%)	Rural		Total N (%)
	Present N (%)	Absent N (%)		Present N (%)	Absent N (%)	
0-5	14(9.5)	133(90.5)	147(100)	35(21.6)	127(78.4)	162(100)
6-10	33(16.8)	164(83.2)	197(100)	44(26.3)	123(73.7)	167(100)
11-18	66(20.7)	253(79.3)	319(100)	91(33.8)	178(66.2)	269(100)
19-30	97(27.1)	261(72.9)	358(100)	133(30.6)	302(69.4)	435(100)
31-40	35(21.7)	126(78.3)	161(100)	60(28.8)	148(71.2)	208(100)
41-50	24(20.5)	93(79.5)	117(100)	30(21.0)	113(79.0)	143(100)
51-60	8(12.9)	54(87.1)	62(100)	21(18.4)	93(81.6)	114(100)
<60	8(13.6)	51(86.4)	59(100)	14(13.7)	88(86.3)	102(100)
Total	285(20.1)	1135(79.9)	1420(100)	428(26.8)	1172(73.2)	1600(100)
$\chi^2=26.472$; df=7; p<0.001			$\chi^2=28.093$; df=7; p<0.001			

Table 3: Distribution of skin disease patients according to sex.

Sex	Skin diseases					
	Urban		Total N (%)	Rural		Total N (%)
	Present N (%)	Absent N (%)		Present N (%)	Absent N (%)	
Male	120(16.5)	608(83.5)	728(100)	219(25.9)	627(74.1)	846(100)
Female	165(23.8)	527(76.2)	692(100)	209(27.7)	545(72.3)	754(100)
Total	285(20.1)	1135(79.9)	1420(100)	428(28.8)	1172(71.2)	1600(100)
$\chi^2=11.981$; df=1; p=.001				$\chi^2=0.683$; df=1; p=.409		

Table 4: Distribution of patients according to socio economic status.

Socio economic class	Skin disease					
	Urban		Total N (%)	Rural		Total N (%)
	Present N (%)	Absent N (%)		Present N (%)	Absent N (%)	
Class I	8(17.0)	39(83.0)	47(100)	7(20.6)	27(79.4)	34(100)
Class II	12(19.7)	49(80.3)	61(100)	20(21.7)	72(78.3)	92(100)
Class III	68(18.8)	294(81.2)	362(100)	96(23.8)	307(76.2)	403(100)
Class IV	100(14.5)	592(85.5)	692(100)	150(24.2)	471(75.8)	621(100)
Class V	97(37.6)	161(62.4)	258(100)	155(34.4)	295(65.6)	450(100)
Total	285(20.1)	1135(79.9)	1420(100)	428(26.8)	1172(73.2)	1600(100)
$\chi^2=63.70$; df=4; p=<0.001			$\chi^2=19.30$; df=4; p=0.001			

Table 5: Distribution of patients according to type of house

Type of house	Skin disease		Total N (%)	Rural		Total N (%)
	Present N (%)	Absent N (%)		Present N (%)	Absent N (%)	
Kuchha	7(25.0)	21(75.0)	28(100)	51(36.7)	88(63.3)	139(100)
Semi Pucca	77(18.1)	349(81.9)	426(100)	199(26.8)	518(73.2)	717(100)
Pucca	201(20.8)	765(79.2)	966(100)	178(23.9)	566(76.1)	744(100)

Total	285(20.1)	1135(79.9)	1420(100)	428(26.8)	1172(73.2)	1600(100)
$\chi^2=1.808$; df=2; p=0.405				$\chi^2=10.40$; df=2; p=.005		

DISCUSSION

As shown in table 1, in urban region, skin diseases were observed in 22.2% Hindus compared to 18.2% Muslims. In rural areas, the prevalence of skin disease was found to be more among Muslims i.e. 33.9 percent compared to Hindus i.e. 24.1 per cent. The association in rural area was reported to be statistically significant ($p < 0.001$). This can be due to the low socio economic status, ill ventilated houses, presence of dampness and poor personal hygiene more among Muslims compared to Hindus in the study population and which are significant ($p < 0.05$) unlike urban population ($p > 0.05$).

A study (22) in Aligarh reported statistically significant ($X^2 = 24.714$; D.f = 1) overall prevalence rate of skin disorders; 9.1 per cent in Hindus, 6.1 per cent in Muslims and 5.3 per cent in Christians. Among individual skin diseases, the difference in prevalence rates among Hindus and Muslims was found to be statistically significant in scabies ($X^2 = 21.041$; D.f = 1) and bacterial infections ($X^2 = 7.173$; D.f = 1) and insignificant in fungal infections ($X^2 = 0.464$; D.f = 1), eczematous conditions ($X^2 = 0.542$; D.f = 1) and acne ($X^2 = 2.641$; D.f = 1).

Subcultures and religions have their own norms and taboos with respect to skin or hair. This can have both religious and personal spiritual symbolism.

Table 2 shows that, in urban area, highest prevalence was observed in the age group 19-30 years i.e. 27.1 per cent, followed by 31-40 years (21.7 per cent), 11-18 years (20.7 per cent), 41-50 years (20.5 per cent). Prevalence in the age groups of less than 10 years and more than 50 years was relatively low as 16.8 per cent in 6-10 years, 9.5 per cent in 0-5 years, 12.9 per cent in 51-60 years, and 13.6 per cent in more than 60 years. In rural area highest prevalence was observed in the age group 11-18 years (33.8 per cent), followed by 19-30 years (30.6 per cent), 31-40 years (28.8 per cent), 26.3 per cent in 6-10 years, 21.6 per cent in 0-5 years, 41-50 years (21.0 per cent), 18.4 per cent in 51-60 years and 13.7 per cent in more than 60 years.

The association of prevalence of skin diseases in the different age group was found to be highly significant ($p < 0.001$ for both urban and rural area).

Other studies reported as :

It was (12) reported in a study that the prevalence of the skin diseases among the study population was increasing with advancing age reaching a maximum in the fourth decade of life (46.4%), while in older age groups the rate is fluctuating. The lowest rate was among those ≥ 60 years of age (27.2%).

Another study (15) showed that overall prevalence of skin disorders increase with age as 78.6% of the cases were aged above 16 years while 21.4% were children below 16 years in their study. Another study (13) found high prevalence rates of skin disorders among age groups (15<25 and 25<45) years old.

In a similar study in Aligarh (22) reported highest prevalence (11.5 per cent) in the age group 16-20 years, followed by 9.6 per cent in the age group 6-15 years and 9.0 per cent in the age group 21-30 years.

Another study (23) found the highest prevalence of skin diseases in the old age group (60+ years) at 94.34%; The lowest prevalence (72.56%) was observed in the age group 0-4 years. Shrestha et al., (24) found the prevalence of skin diseases was significantly higher in children (28.2%) than adults (17.3%, $p < 0.0001$).

Another study (21) stated that there was no significant association between the prevalence of skin diseases and age ($P = 0.06$).

Another study (25) reported in rural Iran that eighty two percent (82%) of skin disorders were found under the age of 40 years. However no significant association was reported.

As shown in table 3, in urban area, the prevalence was found to be more among females i.e. 23.8 per cent compared to males (16.5 per cent). The association was found to be statistically significant ($p = 0.001$). As far as prevalence in the rural area is concerned the

distribution of skin diseases in males and females found to be almost equal with bit more in females (27.7 per cent) compared to males (25.9 per cent).

It was observed in a study (26) that the age groups 15-30 years (females > males; $P = 0.001$), 45-60 years (males > females; $P = 0.003$) showed significant difference between males and females in the occurrence of skin diseases.

Another study (24) found a significant difference between genders with females having a higher prevalence (22.5%) than those of male sex (18.1%, $p = 0.002$).

Another study (12) observed in his rural village study that skin disease prevalence was higher among females than males (44.3% and 27.9% respectively), difference was statistically highly significant ($P < 0.001$).

Another study (27) reported significant different prevalence of 61.9% and 52.6% in males and females respectively ($p = 0.05$).

Another study (23) observed prevalence of skin diseases among females (90.89%) was significantly higher than males (82.71%). Unlike our study, non-significant association of skin diseases with sex of the individuals was also reported as; In a study, it was (28) observed higher frequency of skin diseases among male patients with individual disease frequency. Although they did not report any association between the two.

One more study (14) reported that skin diseases were slightly more prevalent in males 64.0% compared to females 60.0%, although this difference was not significant ($P = 0.4099$).

In a study it was, (20) found that females were more affected than males but it was not statistically significant.

It was found in a study (19) that skin disorders were slightly less prevalent in girls when compared to boys (40.5% and 43.5% respectively). This difference was statistically not significant.

Khalifa et al., (21) observed no significant association between the prevalence of skin diseases and sex of the individual ($P = 0.74$).

Umar et al., (22) reported statistically insignificant overall prevalence of 7.5 per cent among males and 6.8 per cent among females.

Table 4 depicted that with going higher up in the socioeconomic class of the population, the prevalence of skin diseases comes down. In this study we observed that in both rural and urban area the prevalence of skin diseases was highest in lowest socioeconomic class V i.e. 37.6 per cent in urban and 34.4 in rural followed by class II (19.7 per cent), III (18.8 per cent), I (17.0 per cent), IV (14.5 per cent) in urban and class IV (24.2 per cent), III (23.8 per cent), II (21.8 per cent), I (20.6 per cent) in rural area. This observed difference was statistically significant in both urban ($p < 0.001$) and rural area ($p = 0.001$).

A study reported (28) higher prevalence of infectious diseases and infestations among lower class; scabies 15%, fungal infections 9.1%, Although the association was not significant.

A study (20) found highly statistically significant association of skin diseases with children from low economic status 266 (78.5%).

Talukdar and Baruah, (11) observed skin disorders among the children and found that majority 33.8% belong to Class IV socioeconomic status, followed by 21% in Class III status. This association is highly significant at 5% level of significance.

A study (17) reported that in the socio-economic class I & II and also IV & V proportion of infectious patients were more. But in Socio-Economic class III Non Infectious patients were more (Non Infectious-41.0% vs. Infectious 28.1%). This relation of type of skin disease with socio-economic class was also statistically significant ($p = 0.03$).

Another study (23) found the lowest prevalence of skin diseases among persons belonging to "high" class (76.76%), while the highest prevalence was among "very low" class (87.88%). The prevalence of

skin diseases decreased with upgrading of social class. No statistical association was found.

A study (19) reported that the prevalence of transmissible disease was highest (22.2%) in the low income group and lowest (3.8%) in the high income group. There was a statistically significant association between the family income and transmissible skin disease and prevalence increased with decrease in the family income.

Umar et al., (22) in Aligarh, reported highest prevalence of skin disorders (8.72 per cent) in Social Class IV, followed by 6.29 per cent in Social Class III and 3.61 per cent in Social Class II (Table VI). The difference was found to be statistically significant ($X^2 = 24.063$; D.f = 2).

There are some studies indicating that the dermatological and atopic conditions are more severe in individuals with low SES (36,37). As shown in Table 5, in the urban area the prevalence of skin disease was more in the individuals living in kuchha houses i.e. 25 per cent compared to 20.8 per cent in those having pucca house, the difference comes out to be non-significant ($p = 0.405$).

Among the rural population, the prevalence i.e. 36.7 per cent, in the population living in kuchcha houses was significantly more compared to the prevalence i.e. 23.9 per cent, in people having pucca houses and found to be statistically significant with $p = 0.005$.

The non-significant association in the urban population could be due to the fact that other construction of the houses, personal hygiene habits, influence of the surrounding locality influences the occurrence of the skin diseases in great deal.

In a similar study in Aligarh area by Umar et al., (22) revealed a prevalence rate of 8.4 per cent among persons living in Kuchcha house, 7.2 per cent among those living in pucca houses and 7.1 per cent among those living in semi-pucca house. The difference at that time was also found to be statistically significant ($X^2 = 6.462$; D.f = 2).

In another study (16), the 11-20 year age group was the most common age group involved with 164 (31.4%) cases. Infective disorders were found in 59.1% and noninfective disorders in 40.9% of all the skin case.

In another study (18), it was found that male female ratio was 1.1:1. Among all patients (12910), infection was commonest (39.54%), followed by allergic skin disorder (29.20%). 25.05% patients were housewives, followed by students (23.21%). Study showed that 33.28% patients had per capita income of ₹ 361-720/month, and 22.35% patients were educated and/or studied up to class V.

The burden of skin disease has shown both regional and socioeconomic variations. For example, melanoma causes the greatest burden in high-income countries, such as Australia, high-income North America, central Europe, and western Europe, whereas the burden of psoriasis is the greatest in Australasia, western Europe, high-income Asia Pacific, and southern Latin America (30).

Multiple factors may contribute to transmissibility of these diseases in resource-poor areas, such as lack of access to health care services, poor hygiene conditions, and overcrowding (31-34). Low-income countries face major constraints of health care resources and may not have the capacity to adequately respond to infectious diseases (35).

CONCLUSION:

Pattern of skin diseases are mostly depend not only on environmental factors but also on occupation, socio-economic status, literacy, and age of the patients. Skin diseases are one of the most prevalent disease conditions among the general population, representing a major public health problem. Adequate measures should be taken to the grass root community levels to mitigate the problem. Measures should be taken to assess the prevalence of skin disease in much more rural communities where there is very limited access to medical care.

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