



Dermatological Morbidities in A Tea Garden Population of Darjeeling District, West Bengal

KEYWORDS

Dermatological morbidities, Tea garden population, Darjeeling district.

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ABSTRACT **Background:** Pattern of skin diseases vary widely in different regions, among diverse population groups. The study was undertaken to find out dermatological morbidities among tea garden population. **Aims:** To find out pattern of dermatological diseases among tea garden population and also to ascertain epidemiological correlates.

Materials and methods: An observational cross sectional study was conducted in a Tea garden area of Darjeeling district, West Bengal in December 2015. After proper IEC campaign, three medical camps were organized in the tea garden area in collaboration with Dermatology department of North Bengal Medical College. A total of 200 participants attended the camps, and all the attendees were included in the study. Categorical data was expressed in proportion and chi-square test was applied to test the significance. **Results:** Among all dermatological conditions, proportion of infectious diseases was found highest (47.5%) and 41.0% had eczematous conditions. Scabies, tinea and impetigo contributed most of the infectious diseases (40%, 29.5% and 11.6% respectively). Eczematous diseases were mostly noticed on hand/finger-tip (65.9%). However 36% of study subjects suffered from miscellaneous dermatological conditions with or without infective and/or eczematous conditions. These miscellaneous conditions included melasma (30.6%), acne (20.8%) and some other conditions. Overcrowding, personal hygiene, contact history, tea garden related activities were associated as risk factors for skin diseases. **Conclusion:** The study identified various dermatological morbidities and epidemiological correlates behind this problem. It recommends further study involving large number of tea gardens to assess actual magnitude of dermatological diseases among tea garden habitants

Introduction: Tea garden habitants in Darjeeling district of West Bengal are mostly tribal marginalized population. Lack of availability and accessibility of health care services is a major hindrance leading to considerable morbidity burden among them. Several studies have been conducted in different parts of India with greater emphasis given on overall assessment of health and nutritional status of the tea garden population^{1,2,3}. However there are limited studies depicting dermatological diseases in this population^{1,4} globally as well as in India. **Objectives:** To find out pattern of dermatological diseases among the tea garden population and also to ascertain epidemiological correlates.

Materials and methods: An observational cross sectional study was carried out in Kiran Chandra Tea estate, Darjeeling district, West Bengal in the month of December 2015. After proper information, education and communication campaign, medical camps for three consecutive days were organized in the tea garden area in collaboration with Dermatology department of North Bengal Medical College. A total of 200 participants attended the camps with the complaint of skin diseases and all the attendees were included in the study. Detailed history of different epidemiological correlates was taken and diagnosis was made depending upon the presenting skin lesions. Ethical clearance was obtained from Institutional Ethics Committee and participants were provided the highest possible level of medical treat-

ment. Collected data was entered in Microsoft Office Excel 2010 and was analysed by IBM SPSS version 20 and epi-calc 2000. Categorical data was expressed in proportions and chi-square test was applied to test significance. **Limitation:** The study was conducted in a single tea garden. No laboratory tests (e.g microbiological tests, patch test to differentiate between allergic and irritant contact dermatitis etc) were done due to logistic constraints.

Results: Distribution of the study participants according to their socio-demographic variables were given in [Table-1]. The diagnosed various skin diseases were broadly categorised in three subtypes for descriptive convenience; infectious, eczematous and miscellaneous skin diseases [Table-2]. Majority of the study subjects had skin disease of infectious category (47.5%). Among 200 patients, 49 (24.5%) had combination of skin lesions in different categories. The number and percentages of different skin diseases under these 3 broad categories were shown in [Table-3]. Among infectious category majority of cases were due to scabies (40%), followed by tinea (29.5%) and impetigo (11.6%). In eczematous category hand/ finger- tip eczema, hypertrophic planter dermatoses, Pityriasis alba and asteatotic eczema contributed 65.9%, 24.4%, 6.1% and 11.6% respectively and in miscellaneous group maximum proportion of cases were melasma (30.6%) followed by acne vulgaris (20.8%) and angular cheilitis (8.3%) as shown

in [Table-3]. Combination of lesions was noted for both eczematous diseases and miscellaneous conditions. Distribution of pattern of skin diseases according to different epidemiological correlates were given in [Table-4]. Personal hygiene, family/contact history was found to be significantly associated with infectious skin diseases. On the other hand occupation (tea garden activities) was significantly associated with non-infectious group (eczematous and miscellaneous). Overcrowding was not found to be significantly associated with infectious skin diseases [Table-4].

Discussion: The present study revealed that majority of cases (53.5.0%) belonged to 21-59 years of age group indicating that occurrence of cases mostly among economically productive age group. Mean age of the study subjects was 26.01 (SD±16.08) years. Exposure of these groups at different places and circumstances might be a reason for such high number of cases among them.

In this study infectious skin diseases emerged as the largest category (47.5%) followed by eczematous and miscellaneous category (41.0% and 36.0% respectively). Medhi et al¹ reported prevalence of skin lesions like scabies, abscess or furuncle or carbuncle and other skin diseases were 2.9%, 2.5% and 2% respectively in the tea garden population of Assam which was quite less as compared to proportion of skin diseases found in our study.

Many of the study subjects sort treatment for conditions like melasma, acne etc, though they had simultaneous comorbidities like scabies etc. It seems they are more concerned about cosmetic implications. Many of them had given the history of application of OTC (over the counter) products over face and presented in the camp with the lesion suggestive of topical steroid induced rosacea like dermatoses.

Present study found that personal hygiene, family/contact history were significantly associated with infectious skin diseases ($p < 0.05$). On the other hand occupation (tea garden activities) was significantly associated with non-infectious group ($p < 0.05$). Using bare hands, contamination of soil and water with fertilizer, pesticides, animal feather, faeces, various insects, might be the reason behind occurrence of eczematous diseases among the workers. Prevalent of eczematous group of skin diseases among the tea collectors was also reported by Dilek et al³. Though there was no statistical significance between overcrowding and infectious skin diseases ($p > 0.05$), the clinical significance of the finding is, overcrowding may give the invitation of other communicable diseases.

Furthermore, the congested households, poor ventilation and lighting inside the houses, hot and humid environment of the tea garden, poor knowledge and education, ignorance, lower socio-economic status, undernutrition, locally available OTC products might be the hidden factors responsible for occurrence of skin disease among the tea garden people.

The study identified various dermatological morbidities among tea garden population. It also gave attention on various epidemiological correlates which can be modified by effective health education and occupational interventions.

There is need to carry out further study involving large number of tea gardens to explore the real burden of dermatological morbidities among tea garden population and

also to see the unseen precipitating factors, seasonal variation of the diseases. This will help policy makers to take preventive approaches early. The study can be enriched with application of certain diagnostic procedures like patch test, microbiological tests etc. depending upon the availability of resources.

We hope to re conduct such type of study involving all the tea gardens in Darjeeling district.

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Table 1: Distribution of study subjects according to socio demographic variables (n=200)

Socio-demographic variables	Frequency (%)
Age group	
≤ 20	83(41.5)
21-59	107(53.5)
≥ 60	10(5.0)
Gender	
Male	62(31.0)
Female	138(69.0)
Caste	
General	3(1.5)
Schedule caste	2(1.0)
Schedule tribe	195(97.5)
Education	
Illiterate	73(36.5)
Non formal literate	7(3.5)
Formal literacy	98(49.0)
Others*	22(11.0)
Socio-economic status	
Class I	3(1.5)
Class II	5(2.5)
Class III	52(26.0)
Class IV	121(60.5)
Class V	19(9.5)
Occupation	
Tea garden related work [#]	105(52.5%)
At home [@]	95(47.5%)

*Others were children not attending school

[#]Tea garden related work includes leaf plucking, pesticide spraying, plantation etc.

[@]At home includes children, elderly, housewives, students etc.

Table 2: Broad categories of skin diseases among the tea garden population (n=200)

Skin diseases*	Frequency(%)
Infectious	95(47.5)
Eczematous	82(41.0)
Miscellaneous	72(36.0)

*Combination of lesions were noted

Table 3: Subtypes under different broad categories of skin diseases

Pattern of skin diseases	Frequency (%)
Infectious(n=95)	
Scabies	38(40.0)
Tinea	28(29.5)
Pityriasis versicolor	7(7.4)
Impetigo	11(11.6)
Folliculitis	3(3.1)
Furuncle	5(5.3)
Others*	3(3.1)
Ecematous(n=82)	
Hyperkeratotic planter dermatoses	20(24.4)
Hand/ Finger- tip eczema	54(65.9)
Pityriasis alba	5(6.1)
Asteatotic eczema	5(6.1)
Nummular eczema	5(6.1)
Others#	10(12.1)
Miscellaneous(n=72)	
Melasma	22(30.6)
Acne vulgaris	15(20.8)
Angular cheilitis	6(8.3)
Syringoma	5(6.9)
Callosity	4(5.6)
Others®	25(34.7)

*Others include candidiasis, toe nail onychomycosis and verruca vulgaris.

#Others include prurigo simplex, pompholyx, irritant contact dermatitis, Infectious eczematoid dermatitis etc.

®Others include psoriasis, keratosis pilaris, keloid, chronic urticaria, lichen planus, milia, chilblains, vitiligo, dermatosis papulosa nigra etc.

Table 4: Distribution of skin diseases according to different epidemiological correlates (n=200)

Correlates	Pattern of skin diseases		X ²	df	P value
	Infectious n=95	Non-infectious# n=128			
Over crowding					
Present	84(88.4)	106(82.8)	0.95	1	0.329
Absent	11(11.6)	22(17.9)			
Personal hygiene					
Maintained	0(0.0)	28(21.9)	21.81	1	0.000
Not maintained	95(100.0)	100(78.1)			
Family history					
Present	55(57.9)	8(6.3)	69.23	1	0.000
Absent	40(42.1)	120(93.7)			
Occupation					
Tea garden related	31(32.6)	82(64.1)	20.31	1	0.000
At home	64(67.4)	46(35.9)			

* Note: X² = Chi-square; df =Degree of freedom

Non-infectious included eczematous and miscellaneous categories

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