Original Article

The pattern of dermatological disorders among patients attending the Dermatology outpatient department of a tertiary care hospital in Kolkata

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Abstract:

Introduction: The pattern of the dermatological disease varies from country to country and even between geographical areas within a country. This study aims to explore the patterns of dermatological diseases observed in a tertiary care hospital setting and determine their relation to selected socio-demographic variables.

Materials and methods: This descriptive observational study with cross sectional design, was conducted among 214 patients, in the Dermatology outpatient department NRSMCH, Kolkata, between 01/02/24-28/02/24. The patients were selected based on a systematic random sampling method. The dermatologists on duty on the day of data collection identified the diagnosis. A predesigned pretested schedule was used for recording the variables. All collected data were entered into Microsoft Excel, cleaned, checked for consistency and analyzed using SPSS (version 20).

Results: Most patients were male (57.9%), Hindu (59.3%), having education upto primary level (37.4%) and belonging to SES class IV (37.4%). Self-reported co-morbidities were present in 27.6% of the patients. Almost one fifth (18.7%) of the patients had similar disease among family members during the same time. The study population could be almost equally divided between infective (49.5%) and non-infective cases (50.5%). The most common diagnosis overall was tinea (23.8%). Tinea was also the commonest infectious/ parasitic disease in the study population, followed by Scabies (12.6%). Among non-infectious diseases, the commonest was dermatitis (seborrheic, atopic and unspecified) seen in 13.1% of the patients, followed by acne vulgaris (8.9%) and pigmentation disorders (including vitiligo/ melasma/ post inflammatory tatoo pigmentation) (5.1%).Higher proportion of patients in the infectious group were in the age group 35-44 years (41.9%), than the non-infectious group where the highest proportion of patients were in the 15–34-year age group (52.4%). Significantly higher proportion of patients with infectious disease had a family member suffering from similar diseases at the same time (26.7% vs 11%, p=0.003).

Conclusion: The most common diagnosis of patients attending the dermatology outpatient department was Tinea in infectious/ parasitic diseases and Dermatitis in non- infectious diseases. On univariate analysis statistically significant differences were seen between infectious and non-infectious diseases in terms of family members suffering from similar diseases at the same time, but not in terms of age, sex, religion, residence, education, recurrence.

Keywords: skin diseases, outpatient, tinea, eczema, univariate analysis.

Introduction

The pattern of the dermatological disease varies from country to country and even between geographical areas within a country.[1,2] The prevalence of skin disease in the general population varies from 11.16 % to 63 % as seen in various studies.[3] The most common age group in the population are the second and third decades of life (3.7 percent to 51.17 percent).[4]

They are one of the commonest diseases attending the outpatient departments of a tertiary care government hospital for consultation. The pattern of dermatological diseases is based

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on several genetic, sociodemographic, cultural and environmental factors. It is also influenced by population dynamics, including factors such as migration and disasters. The level of healthcare access has also been seen to influence the patterns of skin diseases attending the outpatient department of tertiary care hospitals. This makes their study crucial for understanding disease prevalence, distribution, and management strategies.

Skin diseases tend to get neglected because of the apparent low mortality.[2,5,6] Most come for treatment for cosmetic reasons or when there is significant morbidity associated with the disease. Certain skin diseases may be the first manifestation of a more sinister internal disease, Early identification of skin disease is important not only for treating patients but for preventing the spread of communicable diseases.

This study aims to explore the patterns of dermatological diseases observed in a tertiary care hospital setting and determine their relation to selected socio-demographic variables.

Materials and methods

- **Study type and design**: The present study was a descriptive observational study with cross sectional design
- **Study Setting**: The study was conducted in the Dermatology outpatient department of the Nil Ratan Sircar Medical College and Hospital (NRSMCH), Kolkata
- **Study Population**: All patients attending the Dermatology outpatient of NRSMCH between 01/02/24-28/02/24
    - **Inclusion Criteria**: All patients attending at Dermatology OPD
    - **Exclusion Criteria:** Patients not willing to participate
- **Sampling technique and sample size**:Sample size was calculated based on the following formula: $n = p \times (1 - p) \times z^2 / MOE^2$

  Where, n: sample size; p : sample proportion; z: found by using a z-score table; MOE: margin of error. Using p as 45.7% as the proportion of patients with infectious diseases in the Dermatology OPD (based on the study by Baur et al),[7] 95% confidence interval and a 7% absolute margin of error, the calculated sample size was 195, rounded off to 200.

  A convenient sampling technique was used for sample selection.Approximately 100 patients are seen in the OPD during the 5 hours of OPD time, that is approximately 18 patients in the OPD per hour. The researchers collected data during one hour of their allotted time 10 am and 12 pm daily (except Sundays) giving a total of 216. All patients were interviewed in the dermatologists' chambers and diagnosis as determined by the consultant copied on the schedule. In case the final diagnosis was not determined, the provisional diagnosis was used. Entries in two schedules were incomplete/ illegible and were excluded from the study. So, the final sample size was 214.

- **Study tools:** A predesigned pretested schedule was used for the interview of the patients.Pretesting was done on a different date on 20 patients attending the dermatology outpatient department of the same hospital.

- **Study variables**: The following variables were used in the schedule

  Age: Age of the patient was recorded in completed years

  Sex: Male, Female

  Religion: Hindu/Others (Muslim and Christian)

  Educational Status: *Illiterate*: More than 7 years of age and not able to read/write in any language;*Pre-primary*: education less than primary; *Primary:*passed Class 5, *Middle school*: passed class 8;*Secondary*: passed class 10;*Higher secondary*: passed class 12; *Graduate and above*

  Residence: Urban: areas under a munici pality; Rural: areas under a panchayat

  Co-morbidities: Any self-reported illness for which the patients was taking medicines for more than 6 months

  History of recurrence: Any self-reported history of cure followed by reappearance of similar lesions

  Diagnosis of the patient: Based on the dermatological diagnosis, patients were classified in accordance to the International classification of Diseases10 (ICD 10). In case of any confusion, it was resolved with the help of the dermatologist's opinion.

- **Data compilation and analysis:**All collected data were entered into Microsoft Excel, cleaned, checked for consistency and analyzed using SPSS (version 20). Categorical data were expressed as frequency and percentages while continuous data were expressed as means and standard deviations (SD). the Chi square test was used to compare between categorical data while the independent sample t test was used to compare between the continuous data.

- **Ethical Considerations:** Data collection was done after taking permission from the medical Superintendent cum Vice Principal (MSVP) and the Head of the department of Dermatology, NRSMCH. Informed verbal consent was taken from each patient or their parents/ caregivers accompanying them before asking questions.

- **Operational definitions**

  Socioeconomic status (SES): The modified BG Prasad scale (based on AICPI October 2023

Class name	Class	Income range
Upper class above	I	Above Rs 9098
Upper Middle class	II	Rs 4549- 9097
Middle class	III	Rs 2729- 4550
Lower middle class	IV	Rs 1365- 2728
Lower class	V	Rs below 1365

Results

Finally, 214 patients were included in the study. The mean (SD) age of the study population was 35.8(15.1) years with the 15-34 years being the most common age group at the outpatient department (44.4%). Most patients were male (57.9%), Hindu (59.3%), having education upto primary level (37.4%) and belonging to SES class IV according to the Modified BG Prasad scale (37.4%). Self-reported co-morbidities were present in 27.6% of the patients. Almost one fifth (18.7%) of the patients had similar disease among family members during the same time. (Table 1)

The most common diagnosis overall was tinea (23.8%) of which tinea corporis was the commonest. Tinea was also the commonest infectious/ parasitic disease in the study population, followed by Scabies (12.6%). Among non-infectious diseases, the commonest was dermatitis (seborrheic, atopic and unspecified) seen in 13.1% of the patients, followed by acne vulgaris (8.9%) and pigmentation disorders (including vitiligo/ melasma/ post inflammatory tattoo pigmentation) (5.1%). (Table 2). The study population could be almost equally divided between infective (49.5%) and non-infective cases (50.5%). (Table 3)

The mean (SD) age between the two groups were not significantly different. However, higher proportion of patients in the infectious group were in the age group 35-44 years (41.9%), than the non-infectious group where the highest proportion of patients were in the 15–34-year age group (52.4%). The differences in age group distribution between the infectious and non-infectious cases were not statistically significant. A higher proportion of patients with infectious disease were males (48.6 vs 35.8%), Hindu (60% vs 58.7%), from a rural background (60% vs 46.8%), had primary level of education (42.9% vs 32.1%) and were follow up cases (51.7 vs 48.3%) compared to the non- infectious cases. The differences however did not reach statistical significance. Significantly higher proportion of patients with infectious disease had a family member suffering from similar diseases at the same time (26.7% vs 11%, p=0.003). (Table 4)

Discussion:

The pattern of skin diseases differs with different zones due to socio -economic, racial and environmental factors.[3] In the present study the mean (SD) age of the study population was 35.8 (15.1) years with the 15-34 years being the most common age group at the outpatient department (44.4%). A study from a similar geographic area and setting, found that most patients were from <44 years age group and females in their dermatology outpatient.[2] This trend is similar to those observed in other studies.[1,6,8,9] Increased number of females in the OPD, has been attributed to a higher sensitivity of women to health-related issues or consciousness about their body image at a younger age, as most of our patients presented between ages 20 and 40 years.[10] However certain studies have reported on the contrary. Rao et al,[11] found that among patients attending a medical camp in Kerala, the majority (63.41%) of dermatology patients were males with a male to female ratio of 1.7:1. A study by Gupta et al,[12] from Meerut, Uttar Pradesh, also showed male preponderance for dermatological diseases, as did studies from other parts of India.[4,13,14,15]

The current study found almost similar proportion of dermatological conditions being infectious as well as non-infectious. Almost one fifth of the patients gave similar disease in their family members in same period. Baur et al,[7] found that among the total interviewed patients in their study, non-infectious disease were more than infectious ones. Similar distributions were also reported from the study in Kerala (Non-Infectious 57.07%, Infectious 43.4%).[11]

Infective dermatological conditions were commonest (39.54%), followed by allergic skin disorder (29.20%).[16] Another study from Kolkata with similar research question found majority 15-24 years (35.6%) and but female gender (51.5%) most common. Scabies was mostly diagnosed among infectious type (20.4%) and acne (12.4%) was among the non-infectious. Tinea and acne recurrence was reported mostly. among the study population.[7] Another study from Uttar-Pradesh found that Eczema (21.8%), fungal infections-dermatophytosis (19.37%) were most common skin diseases followed by scabies (17.51%) and pyodermas (7.62%).[12] Baur et al,[7] reported that among the Infectious group Scabies was the commonest form of dermatological presentation, followed by Tinea infection. Impetigo, Folliculitis, Boils, Pyoderma together constituted 8.9% of the studied patients. Among the non-infectious group acne (12.8%), Dermatitis (9.8%), Eczema (7.1%), Miliaria Rubra (4.0%), Lichen Simplex (4.0%), Pompholx (3.6%) insect bite (3.1%), Urticaria (2.7%), Psoriasis (2.7%) were found. A study from Assam, among patients attending the dermatology OPD of a medical college found that Eczema (23.1%), Pyoderma (14.29%), Fungal infections (14.24%) and Psoriases (7.7%) were the major skin diseases in that part of country.[18] Asokan et al,[18] reported fungal (18.74%), bacterial (6.74%) and parasitic (4.31%) infection/ infestation among infectious skin disorder and eczema (21.83%), papulosquamous (12.3%), psoriasis (7.75%) among the non-infectious category.

Accordingly to ICD-10 tinea was the commonest infectious/

parasitic disease followed by Scabies (12.6%), while among non-infectious diseases, the commonest was dermatitis (seborrheic, atopic and unspecified) seen in 13.1% of the patients, followed by acne vulgaris (8.9%) and pigmentation disorders (including vitiligo/ melasma/ post inflammatory tattoo pigmentation) (5.1%).

The current study found significant association withdermatological infection and history of family member suffering from similar diseases at the same time, reflecting the chances of infection or infestation due to close proximity of the of the family members, lack of hygiene and probable sharing of clothing and other personal stuff among family members. However, none of the indicators of personal hygiene were evaluated in the present study. hygiene among A study from Ethiopia pointed out a significant association between skin diseases and the occupation, bad personal hygiene, exchange of clothes and towels with other family members.[19]

Limitation: Being an institution-based study, with non-probability sampling the generalizability of study findings is limited.

Conclusion:

The most common diagnosis of patients attending the dermatology outpatient department was Tinea in infectious/ parasitic diseases and Dermatitis in non- infectious diseases. On univariate analysis statistically significant differences were seen between infectious and non-infectious diseases in terms of family members suffering from similar diseases at the same time, but not in terms of age, sex, religion, residence, education, recurrence.

Table 1: Distribution of patients based on socio-demographic characteristics (n=214)

Characteristic	Level	Frequency	Percentage
Age in years, mean (standard deviation)		35. 8 (15.1)	
Age group	<15	12	5.6
	15-34	95	44.4
	35-54	79	36.9
	⩾ 55	28	13.1
Sex	Female	124	57.9
	Male	90	42.1
Residence	Rural	114	53.3
	Urban	100	46.7
Religion	Hindu	127	59.3
	Others	87	40.6
Educational status	Illiterate*	19	8.9
	Primary	80	37.4
	Secondary	41	19.2
	Higher secondary	43	20.1
	Graduate and above	31	14.5
Similar disease affecting family members simultaneously	No	174	81.3
	Yes	40	18.7
Socio-economic status[$]	I	31	14.5
	II	30	14.5
	III	40	18.7
	IV	80	37.4
	V	25	11.7
Co morbidities present	No	155	72.4
	Yes	59	27.6
Total		**214**	**100**

* In children less than 7 years the educational status of their accompanying parent/guardian was considered

$ 8 Patients did not disclose their income

	Diseases (based on ICD 10 classification)	Frequency	Percentage
Infectious and parasitic diseases	Leprosy	8	3.7
	Herpes zoster	3	1.4
	Tinea (barbae and capitis, manuum, corporis, unspecified)	51	23.8
	Pityriasis versicolor	2	0.9
	Candidal paronychia	2	0.9
	Scabies	27	12.6
Malignancy	Immunoproliferative cancer	1	0.5
Diseases of the skin and subcutaneous tissue	Perifolliculitis/ Cellulitis of finger and toe	3	1.4
	Atopic, seborrheic and unspecified dermatitis	28	13.1
	Contact dermatitis (Allergic, Irritant, unspecified)	16	7.5
	Lichen simplex chronicus and prurigo	2	0.9
	Psoriasis and psoriasis like disorders (vulgaris, palmaris et plantaris,	17	7.9
	Unspecified, Pityriasis lichenoideschronica) Urticaria unspecified	3	1.4
	Disorders of hair and nails (Androgenic alopecia/ Hypertrichosis / Onychogryphosis/ follicular disorders)	6	2.8
	Acne vulgaris	19	8.9
	Epidermal and subcutaneous cyst	2	0.9
	Pigmentation disorders (Vitiligo/ Post inflammatory Tatoo pigmentation/ Melasma)	11	5.1
	Seborrhoeic keratosis	2	0.9
	Hypertrophic scar/ keloid	3	1.4
	Others[$]	8	3.7

$Others include Lichen planus unspecified, polymorphous light eruption, xerosis cutis, necrobiosis lipoidica, linear scleroderma, other specified disorders of skin and subcutaneous tissue and erythema nodosum.

Table 3: Classification of skin disease based on their characteristics (n=214)

Classification of skin diseases	Frequency	Frequency
Infective	105	49.5
Non-infective	109	50.5
Total	214	100.0

4 patients with both infective and non-infective and infective diseases were classified according to their first reported disease on the treatment record.

Table 4: Association between sociodemographic variables and disease characteristics (214)

Characteristics	Level	InfectiveN (%)	Non-infective N (%)	Chi square test	p value
Age groups	<15 years	7 (6.7)	5 (4.6)	5.657	0.130
	15-34 years	38 (36.2)	57 (52.3)		
	35-54 years	44 (41.9)	35 (32.1)		
	⩾ 55 years	16 (15.2)	12 (11)		
Sex	Female	54 (51.4)	70 (64.2)	3.591	0.058
	Male	51 (48.6)	39 (35.8)		
Religion	Hindu	63 (60)	64 (58.7)	0.04	0.848
	Others	42 (40)	45 (41.3)		
Residence	Rural	63 (60)	51 (46.8)	3.750	0.053
	Urban	42 (40)	58 (53.2)		
Educational status	⩾ Graduate	13 (12.4)	18 (16.5)	8.106	0.088
	Higher Sec	24 (22.9)	19 (17.4)		
	Illiterate	10 (9.5)	9 (8.3)		
	Primary	45 (42.9)	35 (32.1)		
	Secondary	13 (12.4)	28 (25.7)		
Family History of similar disease	Absent	77 (73.3)	97 (89)	8.627	0.003*
	Present	28 (26.7)	12 (11)		
Socio-economic status[#] (n=206)	I	20 (19.8)	11 (10.5)	5.847	0.211
	II	15 (14.9)	15 ((14.3)		
	III	15 (14.9)	25 (23.8)		
	IV	37 (36.6)	43 (41)		
	V	14 (13.9)	11 (10.5)		
Co-morbidities	Absent	80 (51.6)	75 (48.4)	1.460	0.227
	Present	25 (42.4)	34 (57.6)		
Total		105 (49.1)	109 (50.9)		

[#] 8 patients did not disclose their income and were excluded from the study

* Statistically significant

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