

Seasonal variation of skin diseases in Nepal: A hospital based annual study of out-patient visits

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ABSTRACT

The aim of this study was to determine whether there was seasonal variation in skin diseases amongst dermatology out-patients in Nepal. A retrospective study was done of all new out-patients visiting a single dermatologist, at the Om Hospital and Research Center, Kathmandu, Nepal. The study population comprised all new patients visiting the dermatology out-patient department, between January and December, 1999. Data were obtained from the hospital out-patient records and analyzed. The total number of patients with skin diseases was 1746 (Males-793; Females-953). Majority (28.6%) of the visits was in spring and the three most common diagnoses included fungal infections, acne and melasma. All skin diseases showed statistically significant seasonal variation. It is clear that occurrence of certain skin diseases in Nepal show a significant seasonal trend.

Keywords: Seasonal variation, skin diseases, out-patients, Nepal.

INTRODUCTION

Seasonal variation of systemic as well as cutaneous diseases has been a subject of considerable interest in epidemiological studies and observed for centuries. Early records on the effects of seasons on health dates back to 460-377 B.C in the writings of Hippocrates.¹ Investigators over the years have well established the effects of environmental factors on skin disease, and seasonality of skin conditions have been observed in many populations. However, owing to wide environmental and climatic variations across the globe, it is assumed that patterns of seasonality would vary in different parts of the world. Nepal is a Himalayan country located 28° N, 84° E in the Indian sub-continent.² Having a population of 24.1 million (2001 census), the country comprises of the mountains in the north, the central hills, and the southern terai plains, with climate varying from arctic type in the north to tropical type in the south.³ To the best of our knowledge, studies on the seasonality of skin diseases has not been reported so far, from Nepal.

SUBJECTS AND METHODS

A retrospective study was carried out including a total of 1746 new out-patients diagnosed with skin disease, visiting a single dermatologist, at the Om Hospital and Research Center located at Kathmandu, Nepal, between Januarys to December, 1999. Diagnoses of Hansen's disease and sexually transmitted infections were excluded. Data were obtained from the hospital out-patient records and examined using meteorologically defined seasons as follows: March 1 to May 31-spring; June 1 to August 31-Summer; September 1 to November 30-Autumn; December 1 to February 28-Winter.

RESULTS

Out of the total, 45.4% were males and 54.5% were females. Majority of the visits was in the spring season, followed by summer, winter and autumn (Fig.1). The seasonality of out-patient visits were statistically significant ($P=0.001$). Three most common diagnoses were fungal infections, acne and melasma. Majority of the patients were diagnosed to have fungal infections ($n=424$), with a peak in summer (33.7%) and trough in winter (15.3%). The peaks and troughs of other diseases varied in different seasons. The means of the variations ranged from 13.75 to 106.00 and all diseases showed significant seasonal variation (Table-1).

DISCUSSION

Seasonal variation of skin diseases, a subject of much epidemiological interest, has been studied for centuries. Occur with seasonal changes. Temperature, humidity, ultraviolet radiation (UVR), flora and

fauna all change with season. Patients with fungal infections comprised majority of our patients, with a peak in summer. It is known that warm, humid climates create the environment for the development of fungal infections.⁴ although our study shows significant seasonality of fungal infections, it needs to be better studied in specific types of mycoses other factors like systemic diseases, species concerned and host susceptibility. Studies regarding seasonal variations of dermatophyte infections appear to vary; infections with anthropophilic species being commoner during summers while infections with zoophilic species peaking during the autumn and winter months.⁵⁻⁸ The higher prevalence of dermatophytoses in pets like cats and dogs, coupled with greater contact of humans with their pets during the winter months have been presumed to result in commoner infection by zoophilic species. UVR exposure is known suppress cutaneous cell-mediated immunity in humans, contribute to the skin aging process as well as development of photoeczemas and skin malignancies.⁹ Our study shows a higher of photodermatitis and polymorphic light eruption in spring and summer, but the proportion of patients with melasma was higher in winter. This could probably be attributed to the habitually greater sun exposure of our people during the cold season. Furthermore, Nepali skin phenotype corresponds the Fitzpatrick's skin types IV and V, which has a good ability to tan. Though western literature suggests that acne improves in summers and worsens in winters, a study from India suggests vice-versa.¹⁰ Another study from the middle-east reported exacerbation of the condition in winters.¹¹ It is also not clear if UVR exposure improves acne lesions.¹² We have observed a peak of patients with acne in winter. However, we cannot conclude if this reflects a true exacerbation. Proportion of patients with contact dermatitis in our study was higher in winter and spring. We did not consider other contributing factors but the seasonality of this observation was also significant. Low temperature and humidity lower the extensibility, resistance to fissuring and hydration of the stratum corneum, thus contributing to damage of the epidermal barrier.¹³ Plant allergens also exhibit seasonal variation.¹⁴ It is well established that scabies is more prevalent during the cooler months and we have observed a similar trend.¹⁵ Factors like overcrowded conditions at home, work places, schools or in public transport systems, which result in greater physical contact, is not sufficient to explain the seasonality of scabies in our setting. We have also not observed its correlation with sexually infections to attribute it to a probable greater sexual contact during winters. Though still need to be studied, scabies seasonality in our study perhaps can be assumed to be due to higher mite fertility index during the cooler months.¹⁵ our study is basically a one year observation of disease pattern in an out-patient setting. It is not clear whether our observations truly reflect the seasonality of the disease process or the utilization of health services. However, it is clear that skin diseases among out-patients in this part of the world demonstrates a significant seasonal variation. Further studies are required, examining the time occurrence and/or exacerbation of individual skin conditions in different seasons. A larger study population needs to be observed over a longer period of time in order to get a clearer picture and such data on the seasonality of skin diseases would assist in the planning and implementation of control measures.

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Table-1: Seasonwise distribution of individual skin diseases.

* Significant P-value < 0.05, Confidence Interval – 95.0%

DIAGNOSES		SPRING n (%)	SUMMER n (%)	AUTUMN n (%)	WINTER N (%)	MEAN	P VALUE *	TOTAL
1.	Fungal Infections	114 (26.9)	143 (33.7)	102 (24.1)	65 (15.3)	106.00	0.007	424
2.	Acne	106 (25.8)	114 (27.7)	82 (20.0)	109 (26.5)	102.75	0.001	411
3.	Melasma	60 (25.5)	56 (23.8)	50 (21.3)	69 (29.4)	59.75	0.001	235
4.	Contact Dermatitis	44 (28.2)	34 (21.8)	29 (18.6)	49 (31.4)	39.00	0.003	156
5.	Scabies	39 (26.2)	31 (20.8)	30 (20.1)	49 (32.9)	37.25	0.003	149
6.	PLE	32 (27.6)	36 (31.0)	26 (22.4)	22 (19.0)	29.00	0.003	116
7.	Photo-dermatitis	54 (49.5)	19 (17.4)	12 (11.0)	24 (22.0)	27.25	0.060	109
8.	Vitiligo	30 (33.0)	19 (20.09)	18 (19.8)	24 (26.4)	22.75	0.004	91
9.	Verruca Vulgaris	22 (40.0)	14 (25.5)	7 (12.7)	12 (21.8)	13.75	0.022	55
		501 (28.6)	466 (26.6)	356 (20.38)	423 (24.22)	24.95	0.001	1746

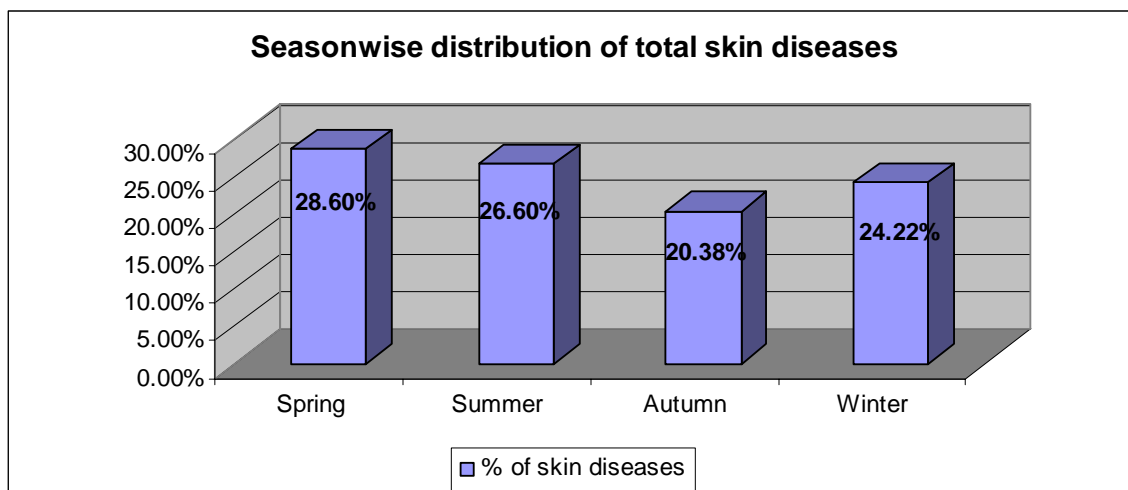


Fig. 1: Percentage of total skin diseases in different seasons.