INTRODUCTION

Skin diseases are one of the basic health problems in the pediatric age group. Association of skin diseases with various seasons has been studied for centuries. Climatic factors have a significant role in skin disorders. The commonest skin disorders encountered with pediatric age group are infections and infestations, eczema, papulosquamous disorders and miliaria. Climatic factors and environmental hygiene are established predisposing factors to the development of bacterial infections. Fungal infections are widespread in tropical and subtropical countries like India due to relatively high humidity. Pediatric dermatoses contrast from dermatoses in adults in clinical presentation, treatment and prognosis thus generating special field of interest. Dermatoses in children are more influenced by climatic exposure, dietary habits, socio-economic status and
external environment as compared to adults. In India, there is wide variation in climatic factors specially in Malwa region. It has four unmistakable seasons in a year, Summer (June to August), Autumn (September to November), Winter (December to February), Spring (March to May). Madhya Pradesh represents 6.46% of total children population in country. As pediatric age contain substantial level of our population. So this study helps us in better understanding of frequency skin diseases in pediatric population and at finding the impact of seasonal variation in skin diseases in the pediatric age group of 0 to 15 years.

METHODS
A retrospective study was done in department of Dermatology, Venereology and Leprosy, R.D. Gardi Medical College Ujjain over one year of duration. A total of 1110 cases of age 0-15 years, who exhibited in our out-patient clinic were incorporated in this study from June 2015 to May 2016. Statistical profiles and clinical details were recorded. Data were gathered and patient’s details were sorted according to four seasons summer (June to August), autumn (September to November), winter (December to February) and spring (March to May). Microsoft excel was utilized for data entry and analysis was done using SPSS version 22. P value of 0.05 was considered as significant.

RESULTS
In the study, there were an aggregate of 1110 patients in the age group of 0-15 years, out of which 618 (55.7%) were males and 492 (44.3%) were females with M:F ratio 1.25:1. Maximum number of patients were in the age group of 10-15 years (43.3%) followed by 5-10 years (29.3%) as shown in Table 1.

Table 1: Demographic profile of study patients.

| Age in years | Male | Female | Total | Percentage (%) |
|-------------|------|--------|-------|----------------|
| 0-1         | 32   | 21     | 53    | 4.77           |
| 1-5         | 142  | 108    | 250   | 22.52          |
| 5-10        | 173  | 153    | 326   | 29.36          |
| 10-15       | 271  | 210    | 481   | 43.33          |
| Total       | 618  | 492    | 1110  | 100            |

Table 2: Seasonal trend of different dermatoses.

| Diagnosis               | Summer | Autumn | Winter | Spring | Total | Percentage | P value |
|-------------------------|--------|--------|--------|--------|-------|------------|---------|
| Bacterial infection     | 93     | 47     | 29     | 58     | 227   | 20.45      | 0.21    |
| Fungal infection        | 73     | 43     | 22     | 38     | 176   | 15.85      | 0.03    |
| Viral infection         | 23     | 33     | 20     | 21     | 97    | 8.73       | 0.04    |
| Scabies                 | 41     | 36     | 57     | 55     | 189   | 17.02      | 0.06    |
| Eczema                  | 53     | 22     | 62     | 40     | 177   | 15.94      | 0.16    |
| Psoriasis vulgaris      | 8      | 10     | 35     | 18     | 71    | 6.39       | 0.00    |
| Urticaria               | 26     | 24     | 22     | 22     | 94    | 8.46       | 0.13    |
| Miliaria                | 31     | 6      | 6      | 6      | 47    | 4.23       | 0.23    |
| Acne vulgaris           | 12     | 8      | 6      | 6      | 32    | 2.88       | 0.04    |
| Total                   | 360    | 227    | 264    | 259    | 1110  | 100        |         |

Table 3: Age wise distribution of common dermatoses.

| Diagnosis               | Age-group (years) | 0-1 | 1-5 | 5-10 | 10-15 | Total |
|-------------------------|-------------------|-----|-----|------|-------|-------|
| Bacterial infection     | 10                | 58  | 60  | 99   | 227   |
| Fungal infection        | 6                 | 32  | 53  | 85   | 176   |
| Viral infection         | 3                 | 20  | 28  | 46   | 97    |
| Scabies                 | 14                | 40  | 54  | 81   | 189   |
| Eczema                  | 7                 | 44  | 68  | 58   | 177   |
| Psoriasis vulgaris      | 0                 | 6   | 22  | 43   | 71    |
| Urticaria               | 6                 | 27  | 26  | 35   | 94    |
| Miliaria                | 7                 | 21  | 8   | 11   | 47    |
| Acne vulgaris           | 0                 | 2   | 7   | 23   | 32    |
| Total                   | 53                | 250 | 326 | 481  | 1110  |
| Percentage              | 4.7               | 22.5| 29.3| 43.3 | 100   |
Most common dermatoses was bacterial infection (n=227, 20.45%) followed by scabies (n=189, 17.02%) and eczema (n=177, 15.94%). Bacterial infection being most common dermatoses in summer followed by fungal infection, eczema and scabies. Eczema was most commonly seen in winter followed by scabies as shown in Table 2. Maximum no. of pediatric dermatoses cases were seen in summer (n=360, 32.4%), followed by winter (n=264, 23.7%), spring (n=259, 23.3%) and autumn (n=227, 20.45%). Bacterial infection was most common dermatoses in adolescent (10-15 yr) followed by fungal infection and scabies. In 5-10 yr age group, eczema was most common followed by bacterial infection and scabies. In infants, scabies was most common followed by bacterial infection and miliaria as shown in Table 3.

DISCUSSION

Skin diseases are one of the essential medical problems in the pediatric age. The pattern of skin diseases in pediatric age groups vary from one nation to other and additionally inside same nation from one state to other due to different climatic factors, external environment, dietary habits & socioeconomic status. Skin infections are typical in children as they are exposed to various climatic, social and economic factors. Immature immune system renders children more vulnerable to cutaneous infections and infestations. Overcrowding, malnutrition and lack of good hygiene are inherent factors in a developing country like India predisposing children for skin infections. Measurement of impact of pediatric dermatoses is an important component and is required to aid for clinical research and for allocation of more resources for care of the children.

In present study, 1110 children up to 15 years of age in both sexes exhibiting outpatient department of skin at tertiary care centre were included. In our study on analysing age demographic profiles showed that maximum no. of cases were in the age group of 10-15 years, similar result was accounted in a study done by Shrestha et al.5

Male patients outnumbered female patients with male: female ratio of 1.25:1 in present study. Male preponderance was observed in some other studies done by Sharma et al and Patel et al.6,7 A study done by Poudyal et al encountered the frequency of male children was more common (54.7%) as compared female children.8 Few studies in literature have shown female preponderance.9,10 This may be due to gender bias in our society where by guardians are more concerned about male children.

In our study the most prevalent dermatoses was bacterial infection (227; 20.45%) trailed by scabies (189; 17.02%). Comparative results have been observed by Karthikeyan et al.5 However, in a study by Patel et al and Nanda et al demonstrated that eczematous dermatoses was the predominant variety.11,12 Fungal infections more typical in study of Sayal et al.13 Viral infections were the commonest in a study by Wenk and Itin et al and Gul et al.14,15 The variation in occurrence of infective dermatoses depends on type of populace studied, environmental factors, hygiene and nutritional status.

There was a wide variety of dermatoses in various season were observed with bacterial infection being commonest in summer and eczema being commonest in winter in our study. Similar results were accounted by various other studies of Shrestha et al and Banerjee et al.16,17

In our study second most common dermatosis in summer was fungal infection (n=73; 6.57%). Sharma et al and Poudyal et al has also accounted fungal infection being commonest dermatosis in summer season.6,8 In our study fungal infection is most common in 10-15 yars of age in our study. Similar result was seen in study done by Poudyal et al.8

Miliaria was most commonly seen in summer with high dominance in 1-5 yr age group as similary observed by Banerjee et al.17 Miliaria occurs commonly in hot, humid environments, which explain the high prevalence in summer in our study. This was experienced in study done by Shrestha et al and Rather et al.16,19

Eczema was the most common dermatosis in winter (n=62; 5.58%) in present study this was supported by various other study.5,6,8 In our study eczema was most common in 5-10yr age group (n=67; 6.03%). However, Shrestha et al has reported highest prevalence of eczema in 10-14 yr of age group.

The second most common dermatosis in winter season was scabies (n=57; 5.13%) in our study. Dhar et al and Banerjee et al15 have also found more prevalence of scabies in winter season.17 A study done by Shrestha, Jha et al have found almost equal prevalence in all four seasons.5,10 In our study scabies was found to be more common in 10-15yr of age group which is similar to the study done by Shrestha et al.5

CONCLUSION

Pediatric dermatoses are common all over the world, which are responsible for significant morbidity in children. Poverty, overcrowding, under nutrition, poor hygiene and lack of health education are responsible for high prevalence of infections and infestations. Pediatric dermatoses require a separate view in management as the clinical presentations differs from adult dermatoses. This study might help to know the changing trends of pediatric dermatoses.

Funding: No funding sources
Conflict of interest: None declared
Ethical approval: The study was approved by the institutional ethics committee
REFERENCES

1. Hancox JG, Sheridan SC, Feldman SR, Fleischcer Jr AB. Seasonal variation of skin diseases in the USA: a study of office visit from 1990 to 1998. Int J Dermatol. 2004;43:6.

2. Jain N, Khandpur S. Pediatric dermatoses in India. India J Dermatol Venereol Leprol. 2010;76:451.

3. Karthikeyan K, Thappa DM. Pattern of pediatric dermatoses in a referral center in South India. Indian J Pediatric Dermatol. 2004:41(4):373-7.

4. Sharma RC, Mendiratta RC. Clinical profile of cutaneous infections and infestations in pediatric age group. Indian J Dermatol. 1999;44:174-8.

5. Shrestha P, Mikrani JA. Seasonal Variation of Pediatric Dermatoses: A Hospital Based Study in Western Hilly Nepal. J Lumbini Med Coll. 2017;4(1):32-4.

6. Sharma S, Bassi R, Sodhi MK. Epidemiology of dermatoses in children and adolescents in punjab, India. J Pak Med Assoc. 2012;22(3):224-9.

7. Patel JK, Vyas AP, Berman B, Vierra M. Incidence of Childhood Dermatosis in India. Skinmed. 2010;8(3):136-42.

8. Poudyal Y, Pathak S, Chaudhary N. Pattern of Pediatric Dermatoses in a Tertiary Care Hospital of Western Nepal. Dermatol Res Pract. 2016: 6306404.

9. Shrestha R, Shrestha D, Dhakal AK, Shakya A, Shah SC, Shakyaa H. Spectrum of pediatric dermatoses in tertiary care center in Nepal. Nepal Med Coll J. 2012;14(2):146-8.

10. Reddy VS, Thyvalappil A, Sreenivasan Ak, Bindurani S, Sridharan R, Bifi J. Study of clinical spectrum of pediatric dermatoses in patients attending a Tertiary Care Center in North Kerala. Indian J Paediatr Dermatol. 2016;17:267-72.

11. Patel RB, Udani RH, Khanna SA. Pediatric dermatoses and eradication in slums. India J Pediatr. 1982;49:135-9.

12. Nanda A, Hasawi FA, Alsaleh QA. A prospective survey of pediatric dermatology clinic patients in Kuwait: An analysis of 10,000 cases. Pediatr Dermatol. 1999;16:6-11.

13. Sayal SK, Bal AS, Gupta CM. Pattern of Skin diseases in Pediatric age group and adolescents. Ind J Dermatol Venereol Leprol. 1998;64:117-9.

14. Wenk C, Itin PH. Epidemiology of pediatric dermatology and allergology in the region of Aargau Switzerland. Pediatr Dermatol. 2003;20:482-7.

15. Gul U, Cakmak SK, Gonul M, Kiliç A, Bilgili S. Pediatric skin disorders encountered in a dermatology outpatient clinic in Turkey. Pediatr Dermatol. 2008;25(2):277-8.

16. Shrestha S, Jha AK, Thapa D, Bhattarai CK. Seasonal variation of common skin diseases in pediatrics age group a retrospective study conducted in a medical college of Nepal. J Universal Coll Med Sci. 2014;2(1).

17. Dhar S, Kanwar AJ. Epidemiology and clinical pattern of atopic dermatitis in a North Indian pediatric population. Pediatr Dermatol. 1998;15:347-51.

18. Banerjee S, Gangopadhyay DN, Jana S, Chanda M. Seasonal variation in pediatric dermatoses. Indian J Dermatol. 2010;55(1):44-6.

19. Rather SR, Dogra D, Gupta V. Study of pattern of pediatric dermatoses in tertiary care center in Jammu division of Jammu and Kashmir. Int J Health Sci Res. 2015;5(5):124-33.

Cite this article as: Kumar U, Varma K, Khairwar PK. Seasonal variation of pediatric dermatoses: a retrospective study conducted in tertiary care centre Ujjain. Int J Res Dermatol 2018;4:168-71.