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Frequency of Skin Diseases and Associated Factors in Addis Alem Primary Hospital from June 2020-May 2021, Bahir Dar, Ethiopia: A Cross-Sectional Study

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Abstract

Background: Skin diseases affect people of all ages and cause a significant burden on patients and the healthcare system. The pattern of these diseases varies from country to country, region to region, and community to community due to different factors. However, there is no study showing a pattern of skin diseases and associated factors in the study area.

Objective: To assess the frequency of skin diseases and associated factors at a primary hospital in Bahir Dar from June 2020 to May 2021.

Method: A hospital-based, cross-sectional study was conducted. Applying Slovin's formula to the study population of 2028, the sample size was calculated to be 338. A systematic random sampling of the population data was performed. A pre-coded data was cleaned, entered into Excel, and exported in to SPSS 20 for analysis. Analysis was done using descriptive statistics. Chi-Square and Fisher's exact tests were used to determine the strength of the association. The level of significance was set at a P value < 0.05.

Result: In this study, the most common skin disease categories were dermatitis (23.0%), fungal infections (20.5%), bacterial infections (10.4%), scabies (9.6%), and pigmentary disorders (8.7%). Age, sex, and seasons have statistically significant associations with various skin conditions.

Conclusion: The study has shown the most common skin diseases in the area of study. It has also demonstrated that age, sex, and season have significant associations with various skin diseases. Knowledge of the extent of these skin disorders and associated factors is crucial for determining priorities for resources, developing public awareness campaigns, and taking preventative measures in resource-constrained settings.

Keywords: Ethiopia; Frequency; Primary Hospital; Skin Diseases

Introduction

Background

Skin diseases are thought to be among the most common diseases, affecting everyone from newborns to the elderly [1,2]. For example, three skin diseases (fungal infections, other skin and subcutaneous diseases, and acne) are among the 10 most common diseases globally [3]. The pattern of these diseases varies from country to country, region to region, and community to community due to genetic makeup

differences, geographic location and environmental changes, occupational exposures, internal factors such as age and gender, socioeconomic differences, and different cultural and religious practices [4]. Some skin diseases are exclusive to childhood, whereas others are found across all age groups. Seasonal variations in certain skin diseases are a well-known phenomenon. For instance, acne, folliculitis, and psoriasis are more prevalent in winter, whereas seborrheic dermatitis is more common in spring [5]. In a global disease burden study (of 2013), skin conditions contributed 1.79% of the global burden of diseases, with individual skin diseases varying in size from 0.38% of total burden for dermatitis (atopic, contact, and seborrheic dermatitis), 0.29% for acne vulgaris, 0.19% for psoriasis, 0.19% for urticaria, 0.16% for viral skin diseases, 0.15% for fungal skin diseases, and 0.07% for scabies [6].

As the pattern of skin diseases differs from region to region and from community to community, and these diseases cause significant burden to the community and healthcare system, knowledge of the distribution of skin diseases within a region or within a community is important in helping to plan care, monitor changes with evolving socioeconomic conditions, and assess the effectiveness of strategies to improve overall health [7,8]. So, undergoing this study reveals somehow what the magnitude of the skin diseases is in this area or community rather than using one-size-fits-all assumptions. This is because the pattern of skin diseases varies from region to region and community to community due to the mentioned factors.

Statement of the Problem and Significance of the Study

According to the WHO prevalence studies in developing countries, skin diseases affect 21- 87% of the population. Problems with the skin are among the main reasons for seeking care, accounting for up to 24% of primary care visits, and are one of the most common causes of morbidity [9]. Based on the limited number of studies on the prevalence or pattern of skin diseases, the pattern of skin diseases in our country varies from region to region and community to community, but most of these studies have been in institutional settings (e.g., tertiary hospitals) and focused only on limited age groups (without considering the general public). In addition, most studies did not assess seasonal variations of the various skin diseases, save for one study done in Wolaita [10]. In contrast to past studies, even if it is also an institutional-based study, this one examines the pattern of several skin diseases in people of all ages and explores their seasonal variations. By doing so, it reveals which skin diseases more commonly occur in which age groups and in which seasons of the year, enabling directed therapies and preventive efforts. Furthermore, this is the first research of its kind on the subject in the area. Therefore, this study determines the pattern of different skin diseases and associated factors presenting in a primary health care setting.

Methods

Study Design

A cross-sectional study using retrospectively collected routine hospital data was undertaken.

Study Setting

General Setting: Ethiopia is a landlocked country in the Horn of Africa. The country covers an area of 1,126,829 km^2. A population of more than 114 million inhabitants (in 2020) makes the country the second-most populous nation in Africa behind Nigeria. The country comprises more than 80 ethnic groups and as many languages. In Ethiopia, the climate varies mostly with altitude, and it goes from the hot and arid climate of the lowlands to the cool climate of the highlands. It has four seasons: summer, autumn, winter, and spring.

Specific Setting: Bahir Dar is the capital city of Amhara Regional State, located in northwest Ethiopia, with a population of 318,429 people, of which 85% live in the urban and 15% in the suburban. It has nine sub-cities and 18 kebeles. The city is located approximately 578 km (360 miles) northwest of Addis Ababa and has an elevation of 1,840 meters (6,036 feet) above sea level. There are 3 public hospitals, 4 private hospitals, and 9 health centers in the city. The study was done in Addis Alem Primary Hospital, which is located in Tedros Sub City/Abay Mado, Bahir Dar City. The hospital offers services in dermatovenereology, internal medicine, gynecology & obstetrics, psychiatry, surgery, pediatrics and child health and ophthalmology.

Data Collection Procedure and Data Quality Assurance: Data on patient demographic information and diagnosis was captured from the patient's hospital card and residents' logbook using a pre-developed data collection format. The data was collected by the principal investigator from the OPD patient registration book, medical records, and the residents' logbook. This was validated against the Hospital Health Management Information System (HMIS). The data was checked for completeness and consistency, and any gaps identified were corrected immediately.

Sample Size Determination and Sampling Technique

The sample size was determined using Slovin's formula for sample size determination for a known population size of

2028.

n= N/(1+Ne2); n= 2028/(1+2028*.05*.05) = 338

e= precision (0.05)

The collected population data was arranged by random number generator using Microsoft Excel, which was followed by systematic random sampling by applying the rand and mod functions to get the desired sample size of 338.

Data Processing and Analysis

After data was checked manually for completeness and consistency, it was coded on Microsoft Excel; imported into SPSS 20 for further cleansing, coding, and analysis. Before delving into the analysis, skin diseases were grouped into specific categories based on the available literature, and dates of patients' hospital visits were used to define the seasons. Descriptive statistics were done using proportion, frequencies, percentage, mean, median, minimum, and maximum, and cross-tabulation of the dependent variable with independent variables was done. The significance of the association or relationship between the dependent and independent variables was ascertained using Pearson's chi-squared test of independence and the Fisher exact test as needed. The level of significance was set at a P value < 0.05. The result was presented in texts, graphs, and tables.

Ethical Consideration

Ethical clearance was obtained from the Bahir Dar University College of Medicine and Health Sciences Ethical Review Board. Permission was asked from Addis Alem primary hospital for the use of the routine data.

Results

Sociodemographic Characters of the Patients Attending Dermatology OPD at Addis Alem Primary Hospital from June 2020 to May 2021

In this study, a total of 338 patients were included. The median age of patients was 19 years with a standard deviation of 17.2, and the minimum and maximum ages were 1 day and 80 years, respectively. Of the patients included, 55.6% (188) were females and 44.4% (150) were males. 74.6 % (252) were from urban areas, 25.4% (86) were from rural areas.

Proportion of Skin Diseases of Patients Attending Dermatology OPD at Addis Alem Primary Hospital from June 2020 to May 2021

In this study, the most common skin disease categories were dermatitis (23.0%), fungal infections (20.5%), bacterial infections (10.4%), pigmentary disorders (8.7%), and papulosquamous diseases (8.4%). With regard to specific skin diseases, the most common were tinea capitis (11.2%), scabies (9.6%), atopic dermatitis (7.9%), impetigo and seborrheic dermatitis (each with 5.6%), vitiligo (5.1%), psoriasis (4.5%), and acne vulgaris (4.0%) (Table 1).

Skin Diseases	Frequency	Percentage
Total	356	100%
Fungal infection	**73**	**20.50%**
Tinea Capitis	40	11.20%
Tinea Corporis	14	4.00%
Pityriasis Versicolor	7	2.00%
Tinea pedis	4	1.10%
Cutaneous candidiasis	6	1.70%
Onychomycosis	2	0.50%
Scabies/infestation	**34**	**9.60%**
Dermatitis	**82**	**23.00%**
Atopic dermatitis	28	7.90%
Seborrheic dermatitis	20	5.60%
Allergic contact dermatitis	8	2.20%
Lichen simplex chronicus	8	2.20%
Pityriasis Alba	5	1.40%
Photo allergic contact dermatitis	5	1.40%
Irritant contact dermatitis	6	1.70%

Nummular Eczema	2	0.60%
Pigmentary disorders	**31**	**8.70%**
Vitiligo	18	5.10%
Melasma	8	2.20%
Post-inflammatory hypo/hyperpigmentation	5	1.40%
Pilosebaceous disorders	**17**	**4.80%**
Acne vulgaris	14	4.00%
Rosacea	1	0.30%
Alopecia Areata	2	0.50%
Papulosquamous disorders	**30**	**8.40%**
Psoriasis	16	4.50%
Lichen planus	8	2.20%
Pityriasis Rosea	4	1.10%
Lichen Nitidus	2	0.60%
Bacterial infection	**37**	**10.40%**
Impetigo	20	5.60%
Folliculitis	8	2.30%
Furuncle	4	1.10%
Carbuncle	3	0.80%
Cellulitis	1	0.30%
Erysipelas	1	0.30%
Urticaria	**7**	**2.00%**
Papular Urticaria	5	1.40%
Chronic Spontaneous urticaria	2	0.60%
Neglected tropical diseases (NTDs)	**9**	**2.50%**
Podoconiosis	4	1.10%
Leishmaniasis	4	1.10%
Yaws	1	0.30%
Others	**36**	**10.10%**
Viral infections	10	2.80%
Molluscum contagiosum	6	1.70%
Plantar wart	2	0.60%
Viral exanthema	2	0.60%
Keloid	5	1.40%
Actinic cheilitis	3	0.80%
Xerosis	4	1.10%
Keratoderma	3	0.80%
Melanoma	1	0.30%
Vascular diseases	5	1.40%
Infantile hemangioma	2	0.50%
Pyogenic granuloma	2	0.60%

Arteriovenous malformation	1	0.30%
Erythema nodosum	2	0.60%
Transient neonatal pustular melanosis	1	0.30%
Discoid lupus erythematosus	2	0.60%

Table 1: Proportion of skin diseases of patients attending dermatology OPD at Addis Alem Primary Hospital from June 2020 to May 2021.

Pattern 0f Skin Diseases with Regard to Sex, Age, Address, and Seasons of the Year of Patients Attending Dermatology OPD at Addis Alem Primary Hospital from June 2020 to May 2021

Sex Distribution of the Skin Disease Categories among Patients Attending Dermatology OPD at Addis Alem Primary Hospital in the Study Period:

From the different types of skin disease categories, pigmentary disorders have been found to have a statistically significant association with sex being more common in females compared to males (23 vs. 8 at p value = 0.029) (Table 2).

Category of Skin Disease	Sex			
	Total 344	Male	Female	P Value
		Total Diagnosis (DX) =158 % of total	Total DX = 198 % of total	
Dermatitis	82	33(21.0)	49(24.7)	0.387
Fungal infection	73	39(24.7)	34(17.2)	0.083
Scabies	34	16(10.1)	18(9.1)	0.74
Papulosquamous	30	18(11.4)	12(6.1)	0.071
Pigmentary	31	8(5.1)	23(11.6)	0.029*
Pilosebaceous	17	4(2.5)	13(6.6)	0.076
Bacterial infections	37	19(12.0)	18(9.1)	0.366
Urticaria	7	1(0.6)	6(3.0)	0.138
NTDs	9	7(4.4)	2(1.0)	0.083
Others	36	13(8.2)	23(11.6)	0.291

Table 2: Sex distribution of the skin disease categories among patients attending dermatology OPD at Addis Alem primary hospital from June 2020 to May 2021.

Age Distribution of the Skin Disease Categories among Patients Attending Dermatology OPD at Addis Alem Primary Hospital June 2020 to May 2021: Fungal infections, urticaria, and scabies were found to be more common in patients under 18 years of age (p values = 0.000, 0.039 and 0.011, respectively). Papulosquamous, pigmentary and pilosebaceous diseases were found to be more common in the age range of 18-40 years (p values = 0.015, 0.005, and 0.001, respectively), whereas NTDs were more common in the age range of 41-60 years (p value = 0.001). These differences were statistically significant (Table 3).

Category of Skin Diseases	Age					
	Under 18	18-40	41-60	Above 60	Total	P Value
	(Total = 169) % from total	(Total = 149) % from total	Total DX = 37 % from total	n = 1 % of total		
Dermatitis	29(17.2)	43(28.8)	10(27.0)	0	82	0.076
Fungal infection	53(31.4)	19(12.8)	1(2.7)	0	73	0.000*

Scabies	24(14.2)	10(6.7)	0	0	34	0.011*
Papulosquamous	7(4.0)	17(11.4)	6(16.2)	0	30	0.015*
Pigmentary	6(3.6)	20(13.4)	5(13.5)	0	31	0.005*
Pilosebaceous	2(1.2)	15(10.1)	0	0	17	0.001*
Bacterial infections	24(14.2)	11(7.4)	2(5.4)	0	37	0.145
Urticaria	5(3.0)	0	2(5.4)	0	7	0.039*
NTDs	2(1.2)	2(1.3)	4(10.8)	1(100)	9	0.001*
Others	17(10.0)	12(8.1)	7(19.0)	0	36	0.194

*Significant (P<0.05)

Table 3: Age distribution of the skin disease categories among patients attending dermatology OPD at Addis Alem primary hospital from June 2020 to May 2021.

Address Distribution of Skin Diseases of Patients Attending Dermatology OPD at Addis Alem Primary Hospital from June 2020 to May 2021: The various skin disease categories have been found to have no statistically significant association with the addresses of patients (Table 4).

Category of Skin Diseases	Address		Total	P-Value
	Urban	Rural		
	(n = 266) % from n	(n =90) % from n		
Dermatitis	58(21.8)	24(27.7)	82	0.361
Fungal infection	60(22.6)	13(14.3)	73	0.099
Scabies	27(10.2)	7(7.7)	34	0.493
Papulosquamous	23(8.6)	7(7.7)	30	0.781
Pigmentary	19(7.1)	12(13.3)	31	0.075
Pilosebaceous	15(5.6)	2(2.0)	17	0.257
Bacterial infections	30(11.3)	7(7.7)	37	0.334
Urticaria	6(2.3)	1(1.1)	7	0.683
NTDs	4(1.5)	5(5.4)	9	0.05
Others	24(9.0)	12(13.3)	36	0.25

*Significant (P<0.05)

Table 4: Address distribution of skin diseases of patients attending dermatology OPD at Addis Alem primary hospital from June 2020 to May 2021.

Association among Skin Disease Categories and Season of the Year of Patients Attending Dermatology OPD at Addis Alem Primary Hospital from June 2020 to May 2021: Skin disease categories like dermatitis were found to be more common during summer and winter (p value = 0.017), and bacterial infections were more common during autumn and winter (p value = 0.013). These associations are statistically significant (Table 5 & Figure 1).

Category of Skin Diseases	Total	Seasons of the Year				P Value
		Summer	Autumn	Winter	Spring	
		(Total = 65) % from total	(Total = 93) % from total	(Total = 98) % from total	(Total = 100) % from total	
Dermatitis	82	22(33.8)	16(17.2)	26(26.5)	18(18.0)	0.013*
Fungal infection	73	15(23.1)	23(24.7)	16(16.4)	19(19.0)	0.705

Scabies	34	6(9.2)	11(11.8)	8(8.2)	9(9.0)	0.956
Papulosquamous	30	4(6.2)	3(3.2)	10(10.2)	13(13.0)	0.05
Pigmentary	31	8(12.3)	8(8.6)	7(7.2)	8(8.0)	0.674
Pilosebaceous	15	4(6.2)	2(2.2)	4(4.1)	7(7.0)	0.319
Bacterial infections	37	2(3.1)	17(18.2)	12(12.2)	6(6.0)	0.013*
Urticaria	7	0(0.0)	2(2.2)	2(2.0)	3(3.0)	0.638
NTDs	9	1(1.5)	2(2.2)	2(2.0)	4(4.0)	0.803
Others	36	3(4.6)	9(9.7)	11(11.2)	13(13.0)	0.322

*Significant ($p < 0.05$)

Table 5: Association among skin disease categories and seasons of year of patients attending dermatology OPD at Addis Alem primary hospital from June 2020 to May 2021.

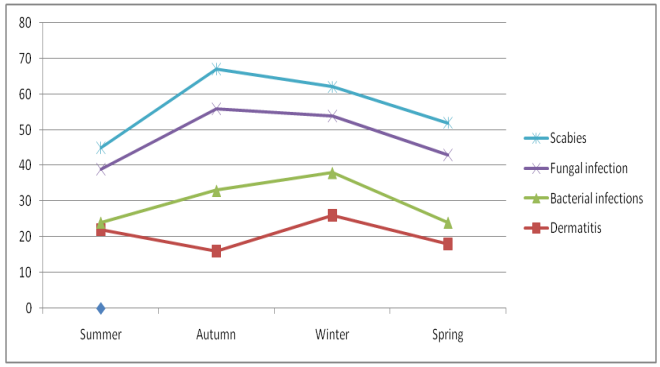

Figure 1: Graphic demonstration.

Discussion

The pattern or prevalence of skin diseases differs from community to community, region to region, and country to country due to a variety of factors, including genetic makeup variations, geographic location and environmental changes, occupational exposures, internal factors like age and gender, socioeconomic differences, and various cultural and religious practices. In light of this, the study has evaluated the pattern of various skin problems in the study area and their association with various factors, as was its initial goal. The study found that dermatitis (23.0%), fungal infections (20.5%), bacterial infections (10.4%), scabies (9.6%), pigmentary diseases (8.7%), and papulosquamous illnesses (8.4%) are the most common skin diseases in the study area. Regarding specific skin diseases, the most common were tinea capitis (11.2%), atopic dermatitis (7.9%), impetigo and seborrheic dermatitis (each with 5.6%), vitiligo (5.1%), psoriasis (4.5%) and acne vulgaris (4.0%).

The findings regarding dermatitis are consistent with the findings of studies done in Addis Ababa 25.5% [11], Wolaita Sodo 23.9% [10], Mekelle 24.7% [12], Nigeria 24.9% [1], Turkey 21.8% [8], and Saudi Arabia 19.7% [9], but it was lower compared to rate of dermatitis in Finote Selam 29.5% [9], Hawassa 35.4% [4], Iraq 33% [13] and South Africa 31% [14]. The proportion of atopic dermatitis, the most common of dermatitis group, was 7.9% in this study, which was in line with studies in Mekelle at 7.5% [12], and Iraq at 7.5% [13] but was higher than in Egypt 1.06% [15], and lower than that in Finote Selam 12.6% [9], Hawassa 12.4% [4], Addis Ababa 14.7% [11], Wolaita 11.3% [10], Nigeria 15.1% [1], and South Africa 25.6% [14]. Such variations may result from inherent genetic variations, seasonal and environmental influences, or both.

The second most common dermatitis category was seborrheic dermatitis with 5.6%, which is consistent with Iraq 5.2% [13] but higher than in Wolaita1.2% [10], Mekelle 2% [12], Tanzania 0.3% [16], Turkey 2.2% [8] and lower than in South Africa 52.2% [14]. These differences may be due to different age ranges of study groups and environmental factors. Regarding the proportion of fungal infections, it was in keeping with the study in Mekelle 20.7% [12], Wolaita 18.8% [10], and Ivory Coast 22.3% [17] but it was higher than in Finote Selam 11.6% [9], Hawassa 9.5% [4], Egypt 16.17% [15], South Africa 5.7% [14], Iraq 11.1% [13], and Turkey 11.1% [8]. Tinea capitis, the most frequent fungal skin infection, occurs at a rate similar to that of Wolaita, 12.7% [10], Nigeria, at 8.1% [1] and the Ivory Coast at 11.3% [17], but greater than that of Tanzania (4.3%) [16], and Iraq at 2.5% [13]. This difference may be explained by variations in the climate (hot and humid conditions increase the risk of acquiring fungal infection) and socioeconomic and hygienic factors.

The proportion of bacterial infections was comparable to that found in Hawassa 8.7% [4], Finote Selam 8.6%, Mekelle 12.1% [12], Wolaita Sodo 13.8% [10] and Egypt 10.10% [15], but it was greater than that found in Tanzania 1.6% [16], Djibouti 4.7% [17], South Africa 4.4% [14], Turkey 1.5% [8], while it was lower than that found in Addis Ababa 27.7% [11]. According to this study, impetigo had a proportion of 5.6%, which is consistent with data from Iraq

at 6.7% [13] but higher than in Turkey at 1.6% [8] and lower than in Wolaita at 13.8% [10], and Egypt at 27.7% [15]. This difference can be explained by differences in times of the studies, socioeconomic and educational status, personal habits, and hygienic conditions.

Regarding the proportion of scabies, it was consistent with studies conducted in Wolaita Sodo at 9.9% [10], Dabat at 9.3% [18], Mekelle at 10.3% [12], and Djibouti at 12.8% [17], but was higher than Turkey at 1.5% [8], and lower than Tanzania at 15.5% [16].This variation may be explained by the study's season, the environment, crowding, socioeconomic and educational status, access to healthcare services, hygiene behaviors, sample size, and length of the study. As far as pigmentary diseases are concerned, they were the fifth most common skin disease with 8.7%, which was comparable with studies in Mekelle 8.3% [12] and Wolaita 7.4% [10]. The most common pigmentary disorder in the study area was vitiligo at 5.1%, followed by melasma with 2.1%. These findings for vitiligo were comparable to findings in Hawassa 5.9% [4], Mekelle 3.4% [12] and Nigeria 3.5% [1] but it was higher than Tanzania 0.9% [16], Turkey 1.2% [8], and Egypt 1.22% [15]. The reason for such differences may have to do with the sample size and study areas.

Lastly, the proportion of papulosquamous diseases was consistent with studies done in Addis Ababa 11.4% [11], Hawassa 8.75% [4], Finote Selam 7.6% [9], Nigeria at 8.0% [1] and Turkey at 9.2% [8] but it was higher compared to findings in Wolaita Sodo at 2% [10], and Iraq at 3.7% [13]. Psoriasis was the most common papulosquamous disease with 4.5%, which was consistent with studies done in Addis Ababa at 4.4% [11], Turkey at 5.5% [8] but was higher than these done in Wolaita at 0.8% [10], Tanzania at 0.3% [16], and Iraq at 2.3% [13]. The age ranges of the participants in the study, the study area, and the study methodology may all have an impact on this discrepancy. In this study, the factors considered have been found to have variable significant associations with various skin diseases. This is presented as follows, and its context with respect to the body of existing literature is evaluated.

This study showed that pigmentary skin diseases were more likely to occur in females compared to men. The other skin diseases did not have a statistically significant association with the sex of patients. With regard to pigmentary disorders, it is in line with findings of studies done in Mekelle [12] and Saudi Arabia [9], but in these studies, papulosquamous and bacterial skin diseases were more common in males compared to females. This difference may have to do with differences in sample sizes among the studies and high health-seeking tendencies in females for cosmetic concerns. With regard to age, this study found that fungal infections, urticaria, and scabies were more likely to occur in individuals under the age of 18. Papulosquamous, pigmentary, and pilosebaceous disorders were more common in the age range of 18-40 years, whereas NTDs were more common in the age range of 41-60 years.

These findings are consistent with studies in Addis Ababa [11], Mekelle [12] and Turkey [8], although a European study that disagrees with this one found that urticaria and pigmentary skin illnesses (vitiligo) did not vary with age [19]. This difference may be explained by differences in socioeconomic status and genetic factors. In terms of the association of skin diseases with a place of residence, this study revealed no statistically significant associations among skin diseases and addresses. This is in stark contrast to most available studies, which show several of the skin diseases, including eczema, to be more common in urban areas and cutaneous infections more common in rural areas [13]. One explanation could be the difference in sample size and ease of access to healthcare. Regarding seasonal association, the study showed dermatitis diseases were more common during summer and winter, and bacterial infections in autumn and winter. This is in agreement with a study done in Wolaita [10] and Saudi Arabia [5].

Strengths and Limitations of the study

Strengths

In this study, the diagnoses were made by dermatology residents and consultants, which reduces diagnosis subjectivity.

Limitations

In addition to the studied factors, there are a number of factors that affect the pattern of skin diseases, some of which were not included as the study used secondary data, and it would have been better if the study period had been over 2 or more years for a better assessment of seasonal variation. The other limitation is that the study was hospital-based and, as such, may not represent the real picture of the conditions in the community.

Conclusion

This study aimed to determine the pattern of skin diseases and associated factors in the study area. To that end, the most common skin diseases in the study area have been found to be dermatitis, fungal infections, bacterial infections, pigmentary disorders, and papulosquamous disorders [20-22]. Of specific skin diseases, the most common were tinea capitis, scabies, atopic dermatitis, impetigo and seborrheic dermatitis, vitiligo, psoriasis, and acne vulgaris. The study also showed that skin diseases have associations with factors

like age, sex, and seasons of the year. In resource-constrained settings like ours, knowing the magnitude of these skin diseases and associated factors is of paramount importance in prioritizing resources and developing public education programs and preventive methods [22-24].

Competing Interests

The authors declare no competing interests.

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