

Prevalence of skin diseases in rural Erbil: A community-based study

Received: 1/12/2010

Accepted: 9/6/2011

Khalis Bilal Mohammed Ali *

Abstract

Background and objectives: Skin diseases in developing world have stimulated a lot of interest over the years because they are potentially preventable and controllable and because skin diseases also serve as an index of community development. The present study was designed to determine the burden of the skin diseases in rural areas of Erbil governorate.

Methods: The study is a community based conducted in one of the rural areas of Erbil study, house to house survey method was applied and all the households were examined after explaining for them the process. Data regarding socio-demographic variables were collected from each family by a specially designed questionnaire. All the household members were clinically examined and the dermatological findings were recorded.

Results: The study population composed of 542 persons, 262 (48.33%) male and 280 (51.67%) female with male to female ratio 0.94:1. The overall prevalence of skin diseases was 36.3%, 164 (30.2%) of them affected with one disease, and 33 (6.1%) affected with two diseases. Infectious dermatoses have the highest prevalence rate (20.1%), followed by eczematous skin diseases (10.2%). The overall prevalence of skin diseases was higher among females than males; the prevalence of skin diseases was increasing with rising crowding index.

Conclusion: The study concluded that the prevalence of skin diseases in rural areas of Erbil governorate is one of the great public health problems that have a significant burden on the population. So, increased public and professional awareness of dermatological care might decrease the size of these disorders and its burden in the community.

Key words: Skin diseases, Erbil, Community based.

Introduction

Skin diseases in developing countries have raised the awareness over the last years, because they are potentially preventable and controllable and they also serve as an index of community development.¹⁻³ Environmental factors have been known to play major role in influencing the trend of skin diseases, particularly in poorly planned and overcrowded areas.²⁻⁴ Most of available statistics on the pattern of skin diseases are based on hospital or private practice, and can provide a very crude indication of true prevalence and incidence in a community in addition to misdiagnosis and

improper recording, as many social and economic factors affect the decision to seek medical advice.^{2,5} The epidemiology is often used to describe the burden of skin diseases in human population, but at the same time, it offers one of the most powerful and direct method of evaluating the cause of skin diseases in human population; so, community based survey is regarded as one of the epidemiological studies that used to determine the morbidity of skin diseases.⁶ Skin diseases has international as well as national variations within one country. There are factors that

*Department of Community Medicine, College of Medicine, Hawler Medical University, Erbil, Iraq.

influence the pattern of skin diseases, like genetic, environment, race, occupation, nutrition and habits can influence the pattern of skin diseases.⁷⁻¹⁰ The present study was designed to find out the prevalence of skin diseases in a rural area of Erbil governorate.

Methods

The study was conducted in a village called "Henara" in Erbil governorate, Kurdistan region, Iraq from 15th Jan to 15th March 2010. The village is 30 km north to Erbil city, with population of 565 persons. Most of the houses are built with mud; some have iron-sheet roofing, there is a seasonal river passing beside it. The main activities of the villagers are farming, casual workers, laborers and animal rearing. The village has one primary school, with one modern primary health care center, staffed with four nurses and three porters and cleaners. This is a household-based survey; all the household members were examined by a dermatologist and assisted by two nurses during the day light after explaining for the households the purpose of the study. For the purpose of conducting the study a questionnaire was designed that composed of two parts, first part is covering socio-demographic characteristics of the subjects, and the second part is covering the dermatological findings. All the household members were clinically examined and the dermatological findings were recorded. Diagnosis of the skin diseases was based on clinical examination, in doubtful fungal infections; scale scrapings were obtained to confirm the diagnosis. Crowding index of each person is measured by dividing the number of households of each house by the number of the rooms, excluding the kitchen and bathroom. The prevalence rate of skin diseases was calculated by dividing the number of all the individuals with skin diseases (numerator) at the time of study by the total number of population at risk (denominator) multiplied by a multiplier (100). Statistical Package for Social Sciences (SPSS) version 15 soft

ware was used for data entry and analysis, Chi-square (χ^2) test of association was used for measuring statistical associations between variables. P-value equal to or less than 0.05 was considered statistically significant

Results

Out of 564 person occupying the village, 542 (96.10%) persons included in this study; 262 (48.33%) male and 280 (51.67%) female with a male to female ratio 0.94:1. The age of study population ranged between 1 month and 85 years with mean \pm SD of 22.88 \pm 18.78 years. The overall prevalence of skin diseases was 36.3%; it was higher among females than males (44.3% and 27.9% respectively), as shown in (Table 1), this difference was statistically highly significant ($P < 0.001$). The prevalence of the skin diseases among the study population was increasing with advancing age reaching a maximum in the fourth decade of life (46.4%), while in older age groups the rate is fluctuating. The lowest rate was among those ≥ 60 years of age (27.2%) as shown in (Table 2). Out of 542 person participated in the study, 164 (30.2%) of the study population were affected with one disease, and 33 (6.1%) with two diseases. The study shows that 109 (20.1%) person of the study population had one infectious skin disease and 88 (16.2%) had one of non-infectious skin diseases. The prevalence of infectious skin, non-infectious and over all skin diseases was increasing with increasing crowding index of the households, as shown in (Table 3). Out of 542 person of study population 109 (20.1%) subjects had infectious skin diseases, 10% among the study population had fungal infection, 4.3% parasitic, 4% viral and 1.8% bacterial. Types of infectious skin diseases are shown in (Table 4). Table (5) shows that among (542) constituting the total study population, 88 (16.2%) cases had non-infectious skin diseases, eczematous skin diseases constitute 10.2% from the study population, followed by sebaceous gland

disorders by (3.5%), plantar hyperkeratosis (2.25%), pigmentary disorders (1.5%), papulosquamous disorders (0.6%) and urticaria, basal cell carcinoma and alopecia areata by (0.2%).

Table 1: Distribution of sample by gender and skin diseases

Gender	Subjects with skin disease No. (%)	Subjects without skin disease No. (%)	Total	χ^2	P- Value
Male	73 (27.9)	189 (72.1)	262	15.78	< 0.001
Female	124 (44.3)	156 (55.7)	280		
Total	197 (36.3)	345 (63.7)	542		

Table 2: Age distribution of subjects, with skin diseases

Age groups (years)	Subjects with skin disease No. (%)	Subjects without skin disease No. (%)	Total No. of examined subjects
< 10	53 (29.8)	125 (70.2)	178
10-19	47 (39.8)	71 (60.2)	118
20-29	41 (43.2)	54 (56.8)	95
30-39	26 (46.4)	30 (53.6)	56
40-49	12 (31.6)	26 (68.4)	38
50-59	9 (37.5)	15 (62.5)	24
≥ 60	9 (27.2)	24 (72.8)	33
Total	197 (36.3)	345 (63.7)	542

Table 3: Prevalence of infectious and non-infectious and overall skin diseases in relation to households crowding index

Crowding index	Subjects with infectious skin diseases No. (%)	Subjects with non-infectious skin diseases No. (%)	Subjects with skin disease (Total) No. (%)	Subjects without skin disease No. (%)	Total No. of examined subjects
< 2	13 (10.8)	13 (10.8)	26 (21.7)	94 (78.3)	120
2 – 4	59 (20.9)	43 (15.4)	102 (33.8)	179 (63.7)	281
> 4	37 (26.2)	32 (22.6)	69 (57.0)	72 (51.1)	141
Total	109 (20.1)	88 (16.2)	197 (36.3)	345 (63.7)	542
P value			< 0.001*		

*Association between subjects with and without skin diseases.

Table 4: Prevalence of infectious skin diseases in categories

Infectious skin disease category	Number of cases	Prevalence (%) among total population (No. 542)
Fungal:		
Tinea pedis	46	8.5
Tinea corporis	6	1.1
Tinea versicolor	2	0.4
Total	54	10.0
Parasitic:		
Pediculosis capitis	14	2.6
Insect bite	9	1.7
Total	23	4.3
Viral:		
Verrucae	10	1.8
Herpes simplex	12	2.2
Total	22	4.0
Bacterial:		
Impetigo	7	1.3
Boils	3	0.6
Total	10	1.9
Total	109	20.1

Table 5: Prevalence of non infectious skin diseases

Non-infectious skin diseases	Number of cases	Prevalence (%) among total population (No. 542)
Eczema/Dermatitis		
Pityriasis Alba	16	3
Contact Dermatitis	13	2.4
Atopic Eczema	14	2.6
Plantar hyperkeratosis	12	2.2
Total	55	10.2
Sebaceous gland disorders		
Acne	19	3.5
Pigmentary disorders		
Melasma	8	1.5
Papulo squamous disorders		
Psoriasis	3	0.6
Urticaria	1	0.2
Basal cell carcinoma	1	0.2
Alopecia areata	1	0.2
Total	88	16.2

Discussion

This is the first community based study to provide a comprehensive view of skin diseases in a rural area of Erbil governorate. The prevalence of skin diseases in this study (36.3%) is near to that recorded in rural Mosul, north Iraq in 2002 (33.2%)¹¹, while more than that reported in Tikrit and Kirkuk "middle and north Iraq" (28%).¹² The lower rate reported in the later study could be attributed to the fact that the investigator examined each resident who reported to have a skin disease, while in this study and in Mosul study, all household members were examined, as many of skin diseases can be neglected or regarded not a health problem by the person. The overall prevalence is near to that reported in southern west rural Tanzania (34.7%)¹³ and Pakistan (36%)¹⁴, higher than that recorded in Indonesia (28%)¹⁵, Ngara district, North West rural Tanzania (26.9%)¹, rural Ethiopia (25.6%)¹⁶, USA (31%)¹⁷, Faroe Islands (5%)¹⁸ and England (22.5%)¹⁹, but it is lower than that reported in rural Egypt 86.93% and 72.3%^{20,21}, Mexico (50%)²² and southern east rural Tanzania (49%).²³ It is important to mention that comparison between the findings of various studies is difficult and not always accurate due to differences in survey methods, difference in culture, sample selection, education level, environmental factor, classification of skin disease, inclusion of the types of skin diseases (trivial, moderate and severe skin diseases), health services level and times of conducting the studies. The higher rate of prevalence among females than the male in current study is agreeable with studies in Mosul¹¹, Iran²⁴ and rural Korea²⁵, equal in both sexes in Kirkuk and Tikrit¹², Mali²⁶, rural Tanzania.¹³ However in a study in Nigeria²⁷ males were more affected the females. In the current study the higher rate of prevalence in females than the males is due to higher rates of diseases like tinea pedis among females (13.9%) versus (2.7%) in males which are mainly due to environmental

actors including excessive wetness and plantar fissuring as a reaction pattern of a thickened inelastic solar skin in response to frequent movement, friction, weight bearing and excessive wetness in house daily activities. The current study showed that all the age groups were affected without significant variations, which is similar to the findings reported in Mosul¹¹, Mali²⁶, Iran²⁴ and Tanzania.¹³ However in a study in Egypt²⁰ the older ages were more affected than other age groups, indicating that all age groups are prone to skin diseases in a noticeable rate. The finding more than one disease in 6% of the study population in current study is revealed in other studies in Egypt²⁰, Tanzania²³ and Sweden.²⁸ The finding of higher rate of infectious skin diseases than non-infectious skin diseases is agreeable with other studies in Mosul¹¹, Kirkuk and Tikrit¹², Mali²⁶, Tanzania¹³, Egypt^{20,21}, Kenya²⁹ and Nigeria³⁰⁻³², however these rates disagree with the studies reported in Hamadan, Iran³³ and Nigeria²⁷. This can be explained on the basis of poor personal and environmental hygiene in rural areas, with low educational level which are in the favor of development and distribution of infectious skin diseases. The higher rate of skin diseases in general and infectious diseases in particular in crowded houses are seen in other studies in Tanzania¹, Sierra Leon²⁹ and Vanuatu Papua New Guinea.³⁴ This is due to low socio-economic status is crucial in accounting for the distribution of skin disease and overcrowded houses encourages the spread of infectious agents. The higher rate of non-infectious skin diseases in overcrowded families agrees with the findings of other studies in Mosul⁵, Saudi Arabia³⁵ and Turkey³⁶, this may be due to bad living conditions (humidity and/or mildew at home), passive tobacco smoking, presence of pets at home, neglect and lack of therapy and excessive exposure to irritants. In current study the dermatitis rate (10.2%) is near to that recorded in two rural Iraqi regions Tikrit and Kirkuk

(8.6%)¹² and Mosul (6.7%)¹¹, but less than that recorded in Hamadan, Iran (37.5%)³³, USA (19%)¹⁷, England (19%)³⁷, Singapore (34%)³⁸, and Egypt (19.82%)²⁰. These variations may be due to genetic factors, occupation and chance of contact with different physical and chemical agents in the studied population.

Conclusion

The prevalence of skin diseases in Henara area of Erbil governorate is high and is one of the great public health problems that have a significant burden on the population. Therefore, increased public and professional awareness of dermatological care might decrease the size of these disorders and its burden in the community.

References

- Gibbs S. Skin diseases and socio-economic conditions in rural Tanzania. *Int J Dermatol* 1996; 35: 633-9.
- Canizaries O. *Epidemiology and ecology of skin diseases in the tropics and subtropics*. Oxford: Oxford University Press, 1993. P.32-5.
- Ryan TJ. Healthy skin for all. *Int J Dermatol* 1994; 33: 829-35.
- Hay R, Andersson N, Estrada R, Guerrero. Mexico: Community dermatology. *Lancet* 1991; 337: 906-907.
- Burton J, Savin J, Champion R. Epidemiology and historical bibliography. In: Champion R, Burton J, Ebling F, eds. *Rook/Wilkinson/Ebling textbook of dermatology*. Oxford: Blackwell Science Publications; 1992. P.1-15.
- Doll RF, Hennekens CH, Buring JE, Mayrent SL. *Epidemiology in medicine*. Toronto: Little Brown and Co.; 1987.
- Sackett DL, Haynes RB, Guyatt GH, Tuowell P. *Clinical epidemiology*. Toronto: Little Brown and Co.; 1985.
- Williams H C. Smoking and psoriasis. *BMJ* 1994; 308:428-9.
- Williams HC, Strachan DP, Hay RJ. Childhood eczema. *BMJ* 1994;308:1132-5.
- Adams RM. *Occupational skin disease*. 2nd ed. London:W B Saunders Co.;1990.
- Abdul-Majeed AZ. Prevalence of skin diseases in Ninevah governorate. M.Sc. thesis. University of Mosul, college of medicine; 2002.
- Al Samarai AGM. Prevalence of skin diseases in Iraq: A community based study. *Int J Dermatol* 2009; 48(7):734-9.
- Satimia FT, McBride SR, Leppard B. Prevalence of skin disease in rural Tanzania and factors influencing the choice of health care, modern or traditional. *Arch Dermatol* 1998; 134: 1363-6.
- Porter MJ, Mack RW, Chaudhary MA. Pediatric skin diseases in Pakistan. A study of three Punjab villages. *Int J Dermatol* 1984; 23: 613-6.
- Saw SM, Koh D, Adjani MR, Wong ML: A population-based prevalence survey of skin diseases in adolescents and adults in rural Sumatra, Indonesia. *Trans R Soc Trop Med Hyg* 2001;95(4):384-8
- Figueroa JI, Fuller LC, Abraha A. Dermatology in southern Ethiopia: rationale for a community approach. *Int J Dermatol* 1998; 37: 752-8
- Johnson M, Roberts J. Skin conditions and related need for medical care among persons 1-74 years. *Vital and Health Statistics. Series II, No. 212*. DHEW Publication, p. 79-1660. US Department of Health, Education and Welfare, National Center for Health Statistics, 1978: 1-72
- Lomholt G. Prevalence of skin diseases in a population. *Dan Med Bull* 1964; 11: 1-7.
- Rea JN, Newhouse ML. Skin diseases in Lambeth: A community study of prevalence and use of medical care. *Brit J Prev Soc Med* 1976; 30: 107-14.
- Abdel Hafez K, Abdel Aty MA, Hofny ERM. Prevalence of skin diseases in rural areas of Assiut Governorate, Upper Egypt. *Int J Dermatol* 2003; 42:887-92.
- El-Akhras A, Sonbol O, Khattab M. Prevalence of skin diseases in rural area. *N Egypt J Med* 1992; 6: 844-9.
- Estrada-Castañón R, Torres-Bibiano B, Alarcón-Hernández H, Villegas-Arrizón A, Chavez-Lopez G, Martínez Sandoval E, et al. Epidemiología cutánea en dos sectores de atención médica en Guerrero, México. *Dermatología Rev Mex* 1992; 36(1):29-34.
- Henderson CA. Skin disease in rural Tanzania. *Int J Dermatol* 1996; 35: 640-2.
- Baghestani S, Zare S, Mahboobi AA. Skin disease patterns in Hormozgan, Iran. *Int J Dermatol* 2005; 44: 641-5.
- Suh HS, Jung EC, Chang SE, Suh CW, Park IJ, Han MH, et al. Distribution and recognition of skin diseases in rural areas. *Korean J Dermatol* 2001 Feb;39(2):139-46.
- Mahe A, Cisse IA, Faye O. Skin diseases in Bamako (Mali). *Int J Dermatol* 1998; 37: 2673-6.
- Nnoruka EN. Skin diseases in south-east Nigeria: A current perspective. *Int J Dermatol* 2005; 44: 29-33.
- Larsson PA, Leiden S. Prevalence of skin diseases among adolescents, 12-16 years of age. *Acta Derm Venereol* 1980; 60: 415-23.
- Schmeller W, Dzikus A. Skin diseases in children in rural Kenya: long-term results of a dermatology project within the primary health care system. *Br J Dermatol* 2008; 144(1):118-24.
- Gbakima AA, Lebbie AR. The head louse in Sierra Leone: an epidemiological study among

-
- school children, in the Njala area. *West Afr J Med* 1992; 11: 165–71.
30. Okoro AN. Skin diseases in Nigeria. The Transactions St John's Hospital Dermatological Society 1973; 59.
31. Shrank AB, Harman RRM. The incidence of skin diseases in a Nigerian Teaching Hospital Dermatologic Clinic. *BrJ Dermatol* 1966; 78: 235.
32. Clarke GHV. Skin disease in a developing tropical country. *BrJ Dermatol* 1962; 74: 123.
33. Zamanian A, Mahjub H. Prevalence of skin diseases in Hamedan, Iran in 2002. *Indian J Dermatol* 2005; 50(4): 208-11.
34. Harris MD, Nako T, Hopkins DMI. Skin infections in Tanna, Vanuatu in 1989. *Papua New Guinea Med J* 1992; 35: 906–7.
35. Parthasaradhi A, Al-Gufai AF. The pattern of skin diseases in Hail region, Saudi Arabia. *Ann Saudi Med* 1998; 18(6): 558-61.
36. Inanir I, Sahin TM, Gunduzk Dinc G, Ozturkcan S. Prevalence of skin conditions based on socio – economic factors. *Pediatr Dermatol* 2002; 19: 307-11.
37. Horn R. The pattern of skin disease in general practice. *Dermatol Pract* 1986; Dec: 14-9.
38. Goh CL, Chua-TYC, Koh SL. A descriptive profile of eczema in tertiary referral center in Singapore. *Ann Acad Med Singapore* 1993; 22:307-15.