

ORIGINAL ARTICLE

Analysis of the Demand for Dermatological Care in the Immigrant Population Served by Hospital Miguel Servet in Saragossa, Spain

N Porta,^a J San Juan,^b E Simal,^a R Baldellou,^a M Ara,^a and ML Zubiri^a

^aServicio de Dermatología, Hospital Miguel Servet, Zaragoza, Spain

^bAsesor de Informática, Centro de Profesores y Recursos n.º 1, Zaragoza, Spain

Abstract. *Introduction.* In recent years there has been an increase in the size of the immigrant population consulting dermatology services in Spain. The aim of this study was to describe the epidemiological characteristics of this sector of the population in the health care area served by Miguel Servet Hospital in Saragossa, Spain.

Material and methods. Data were collected on immigrant patients seen in the dermatology department of our hospital during 2004. Dermatological diagnoses were classified according to the International Classification of Diseases, Ninth Revision, Clinical Modification. Statistical analysis was undertaken using the SPSS statistical package, Access database management software, and Excel spreadsheets.

Results. A total of 706 patients were seen, corresponding to approximately 4% of all first appointments, and more women were seen than men, a difference that was statistically significant. The mean age of the patients was 31 years and there were no statistically significant differences in age between the sexes. In order of frequency, the most common countries of origin of the patients were Ecuador, Colombia, Romania, Morocco, Gambia, Guinea, and Senegal.

The most common skin diseases in this population group were infectious diseases, in particular mycoses, followed by viral diseases and pyodermitis, as well as sexually transmitted diseases. In all cases, the incidence of the disease was higher than in the Spanish population.

Conclusions. An appropriate knowledge of dermatological diseases in this population group is necessary both to obtain correct diagnosis and to develop preventative measures for imported diseases.

Key words: immigrants, epidemiology, skin diseases.

ANÁLISIS DE LA DEMANDA ASISTENCIAL DE DERMATOLOGÍA EN LA POBLACIÓN INMIGRANTE DEL ÁREA DE SALUD DEL HOSPITAL MIGUEL SERVET DE ZARAGOZA

Resumen. *Introducción.* Se ha observado en los últimos años un aumento en la población inmigrante que acude a nuestras consultas. Pretendemos describir en el presente estudio las características epidemiológicas dermatológicas de este grupo de población en el área de salud del Hospital Miguel Servet de Zaragoza.

Material y métodos. Se han recogido los datos de los pacientes inmigrantes atendidos en nuestras consultas de Dermatología durante el año 2004. Los diagnósticos dermatológicos se han codificado según el ICD-9-CM. El estudio estadístico se ha realizado con el programa SPSS, el gestor de base de datos Access y la hoja de cálculo Excel.

Resultados. Se han atendido un total de 706 pacientes inmigrantes, lo que supone el 4% aproximado del total de primeras visitas, apreciándose una mayor frecuencia de mujeres, con diferencias significativas. La edad media es de 31 años, sin que se aprecien diferencias significativas entre ambos sexos.

Ecuador, Colombia, Rumanía, Marruecos, Gambia, Guinea y Senegal son por este orden los países de origen que con más frecuencia se han detectado entre nuestros pacientes. Las enfermedades dermatológicas más frecuentes en este grupo de población han sido las de origen infeccioso, sobre todo micosis, siguiendo las de ori-

Correspondence:
Nieves Porta Aznárez
Avda. Gómez Laguna 16, 3.ªA
50009 Zaragoza, Spain
nportaa@medynet.com

gen viral y las piodermitis así como las enfermedades de transmisión sexual, apreciándose en todas ellas una incidencia superior a la de la población autóctona.

Conclusiones. Se hace necesario un adecuado conocimiento de la patología dermatológica en este grupo de población con el fin de realizar tanto un correcto diagnóstico y tratamiento como de desarrollar medidas de prevención de enfermedades importadas.

Palabras clave: inmigrantes, epidemiología, enfermedades dermatológicas.

Introduction

Spain can currently be described as an immigrant-receiving country. As a result, in recent years, there has been a steady increase in the number of patients from different countries and cultures attending Spanish health centers.

Cutaneous diseases form an important group within the set of diseases observed in the immigrant population, as shown by several epidemiological studies.¹⁻⁶ The present study describes the epidemiological characteristics of this population group in relation to dermatology in the health care area served by Miguel Servet Hospital in Saragossa, Spain.

Material and Methods

During 2004, data were prospectively collected on immigrant patients referred for the first time by primary care centers to specialist dermatology units in the health care area served by Miguel Servet Hospital in Saragossa.

Microsoft Access software was used to create a file for each patient and a number was assigned to it, thus maintaining the confidentiality of the data. Each file contained the data necessary for later analysis of the results: the patient's identity number, date of birth, sex, country of origin, length of stay in Spain, date of the first appointment, original primary care center, reason for consultation, and dermatological diagnosis.

To facilitate statistical analysis of the data, a database was created containing all the diagnoses possible and the corresponding codes from the International Classification of Diseases, Ninth Revision, Clinical Modification and the International Classification of Diseases, Tenth Revision.^{7,8} The data obtained under the data collection protocol were coded and stored on a computer for later statistical processing using SPSS software and the Excel spreadsheet.

The results obtained in the immigrant population group were compared to those obtained in a previous study of demand for dermatological care in the local population.⁹ Qualitative variables were compared using the χ^2 test with 2x2 contingency tables and the means of quantitative

variables were compared using the *t* test. *P* values less than .05 were considered significant in all tests.¹⁰ The Fisher exact test was used as a correction factor for χ^2 when the number of cases of a given disease was less than 5.

Results

During the study period, a total of 706 immigrant patients attended our dermatology clinics for the first time, representing 4% of the total number of new appointments. There were more women (401) than men (295), a difference that was statistically significant ($P < .01$). The mean age of the immigrant patients was 31 years, with no significant differences between the sexes, whereas the mean age of nonimmigrant patients was 42.79 years, also with no significant differences between the sexes. These characteristics can be compared in Figures 1, 2, and 3, which show the differences between the population pyramid served by our hospital and those of the immigrant and nonimmigrant patient population attending our dermatology unit.

Over the course of the year, a mean of 59 immigrant patients per month attended the unit, with the greatest number of visits occurring in May (Figure 4). There was no significant reduction in demand in July and August, in contrast to a study of the local population.⁹

The most frequent countries of origin were, in descending order, Ecuador, Colombia, Romania, Morocco, Gambia, Guinea, and Senegal (Figure 5). The most frequently diagnosed diseases were infectious ones, especially mycosis, followed by viral dermatosis, pyoderma, and sexually transmitted disease (STD) (Figure 6 and Table 1).

The most frequent mycotic diseases were onychomycosis (28 cases, 4%) and tinea capitis (25 cases, 3.54%). Mycological study identified *Trichophyton violaceum* and *Trichophyton soudanense* in the latter disease. Of a total of 20 350 nonimmigrant patients, 260 patients were diagnosed with onychomycosis (1.1%) and 10 with ringworm of the scalp (0.0%). These differences between the Spanish and immigrant populations were statistically significant ($P < .001$) (Table 2).

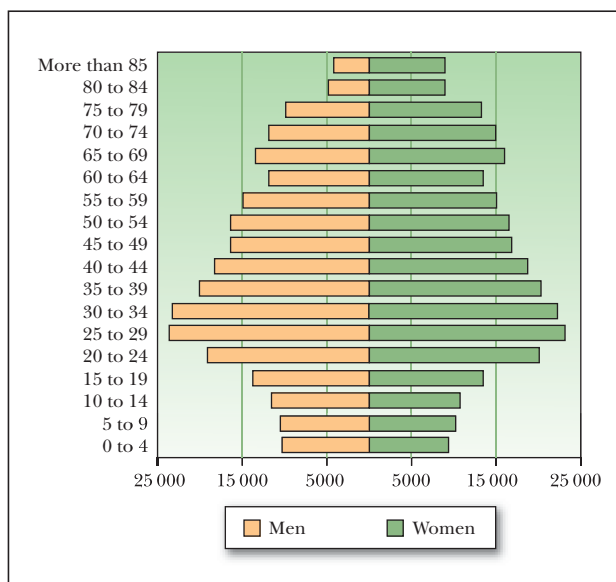


Figure 1. Population pyramid of the health care areas served by Miguel Servet Hospital in Saragossa, Spain.

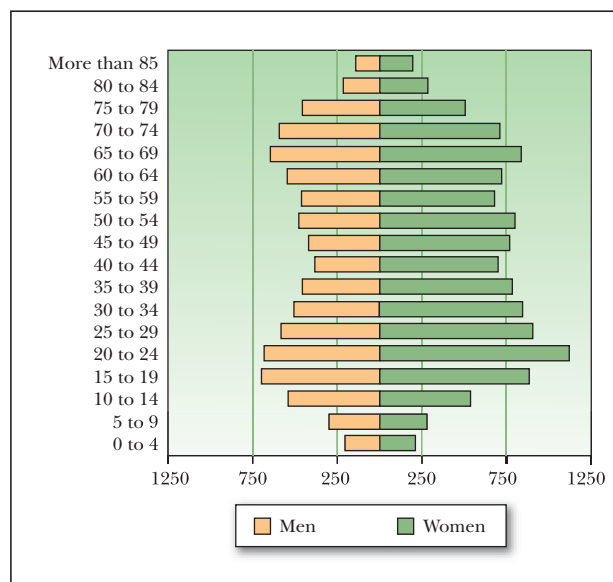


Figure 2. Population pyramid for new nonimmigrant patients attending the dermatology unit.

In terms of viral disease, there were 12 cases (1.7%) of genital warts in the immigrant population and 56 cases (0.20%) in the local Spanish population, a difference which was also statistically significant ($P < .001$) (Table 2). Among the STDs, there were 5 cases of syphilis (0.7%) in the immigrant population compared to 4 cases in the local population (0.0%), and this difference was significantly different ($P < .001$) (Table 2).

There were 1039 cases nonmelanoma skin cancer in the nonimmigrant patients (4.5%) compared to only 2 cases in the immigrant population (0.2%), a difference that was highly significant ($P < .001$) (Table 1). There were 39 cases (0.20%) of melanoma in the nonimmigrant population and 1 case (0.14%) in the immigrant population. The difference between the 2 groups could not be calculated with the statistical software due to this low figure (Table 1).

Other diseases, such as atopic dermatitis, contact dermatitis, and dyschromia, were also diagnosed in higher numbers in the immigrant group, whereas psoriasis was more frequent in the nonimmigrant group (Table 1). Table 1 shows the most commonly diagnosed dermatological diseases in the population groups ordered according to the difference in frequency between the groups, and Table 2 shows the most frequently diagnosed infectious diseases in the immigrant population group, along with the difference in frequency observed in the nonimmigrant population.

Discussion

The increase in the number of immigrants in Spain is having serious repercussions on dermatology services. Dermatology

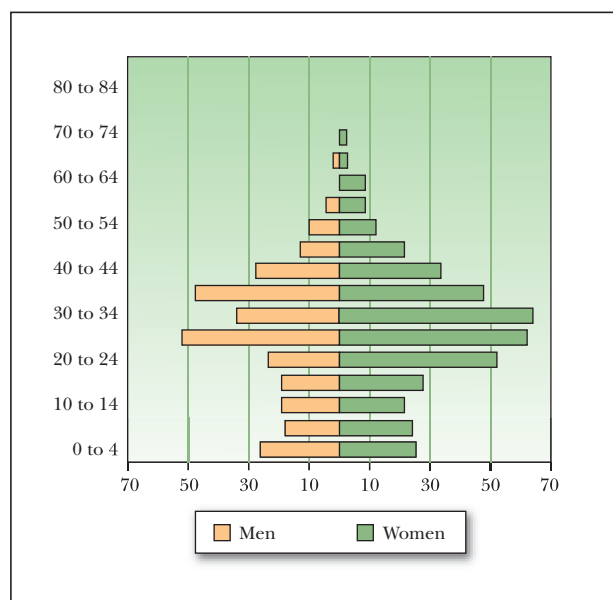


Figure 3. Population pyramid for new immigrant patients attending the dermatology unit.

units are consulted more often than other specialties and, in addition, attending to this group places an even greater burden on them.

In the present study, the immigrant population formed 4% of the total of new patients attending our service, a percentage which is less than that reported by dermatologists from other regions, such as the Canary Islands or the Autonomous Community of Valencia in Spain, regions with greater numbers of immigrants than in the Autonomous Community of Aragon.

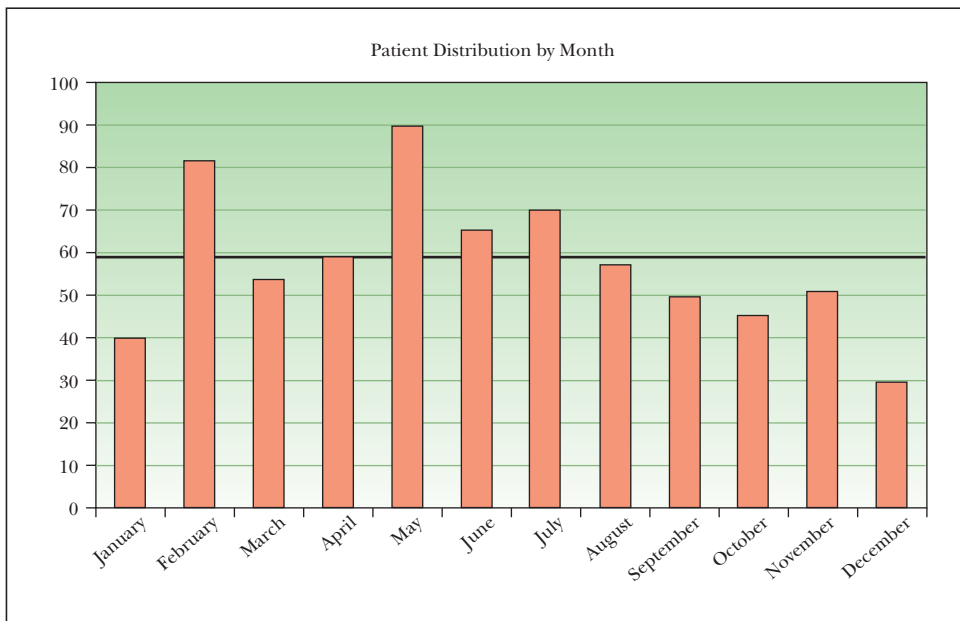


Figure 4. Frequency at which immigrant patients attended the dermatology unit during 2004.

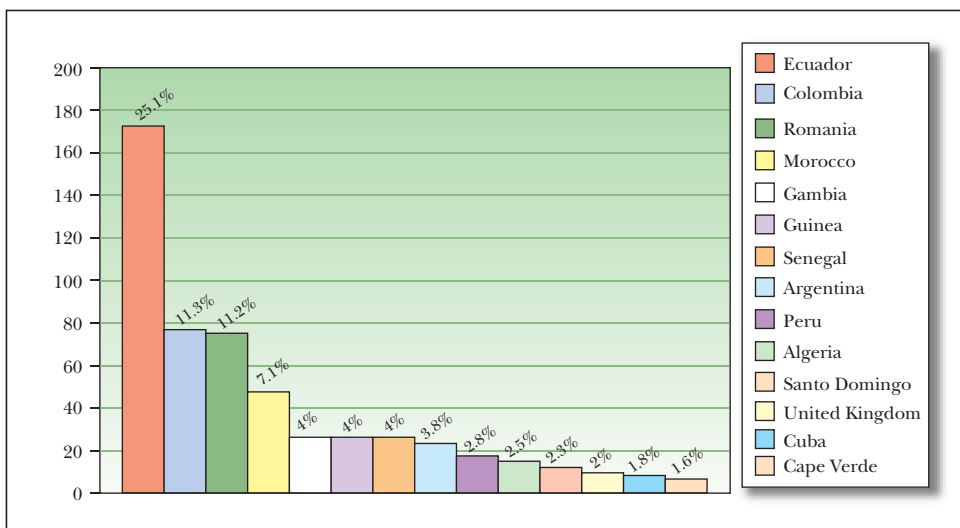


Figure 5. The distribution of immigrant patients according to country of origin.

Similar to the nonimmigrant population, attendance by immigrant women was higher than that by immigrant men, possibly due to them having more opportunities to visit the physician or by being more concerned about the disease rather than actually presenting higher incidences of dermatological disease. The immigrant population was younger than the nonimmigrant one, mostly corresponding to adults of working age and children, with very few retired individuals. This observation may account for the types of dermatological disease diagnosed in this population group, including a greater proportion of infectious diseases and very little neoplastic disease, which is characteristic of older populations such as our nonimmigrant population.

Latin American immigrants, mainly from Ecuador,

formed the largest group within the study population. This is in contrast to information from the Spanish Ministry of Work and Social Affairs, which, in 2000, identified African immigrants as the most numerous group.¹¹

Similar to the findings of other authors,¹² diseases of infectious origin were the ones most often diagnosed, with mycosis being the most frequent within this group of diseases among immigrants. Onychomycosis and tinea capitis were the most frequent mycotic diseases. Mycological studies in cases of tinea capitis revealed a high proportion of anthropophilic fungi, such as *T violaceum* and *T soudanense*, a finding which is similar to reports from other authors.¹³⁻¹⁹ This type of ringworm is very prevalent in the immigrants' countries of origin and, with the increased numbers of

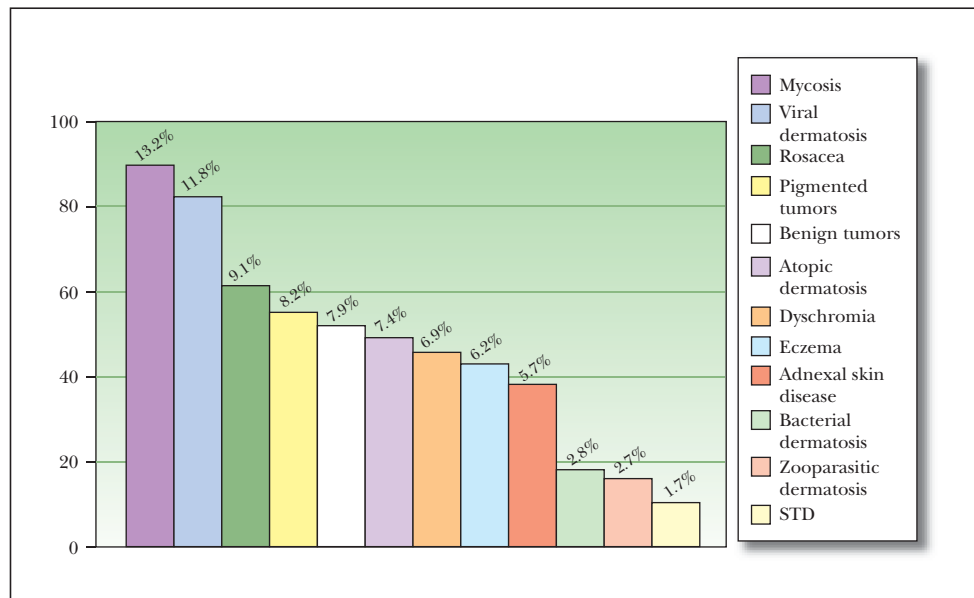


Figure 6. Dermatological diseases diagnosed in the immigrant population in order of frequency. STD indicates sexually transmitted disease.

Table 1. Comparison of the Frequency of Dermatological Diseases Between the Immigrant and Nonimmigrant Populations.

Diagnosis	Immigrant Population 706 Patients		Nonimmigrant Population 20 350 Patients		Difference, % ^a	χ^2 Test	P ^b
	Cases	%	Cases	%			
Mycosis	93	13.20%	946	4.10%	9.10%	105.69	<.001
Atopic dermatitis	52	7.40%	552	2.30%	5.10%	53.01	<.001
Dyschromia	49	6.90%	549	2.40%	4.50%	44.51	<.001
Rosacea	64	9.10%	1.497	6.50%	2.60%	2.90	.090
Zooparasitic dermatosis	19	2.70%	137	0.60%	2.10%	37.78	<.001
Melanoma	1	1.70%	39	0.20%	1.50%		
Bacterial dermatosis	20	2.80%	327	1.40%	1.40%	6.32	<.050
STD	12	1.70%	75	0.30%	1.40%	29.38	<.001
Adnexal skin disease	40	5.70%	1.048	4.50%	1.20%	0.37	.550
Eczema	44	6.20%	1.242	5.40%	0.80%	0.02	.880
Viral dermatosis	83	11.80%	2.662	11.50%	0.30%	1.056	.330
Nonmelanoma skin cancer	2	2.70%	1.039	4.50%	-1.80%	33.76	<.001
Psoriasis	23	3.25%	1.178	5.10%	-1.85%	8.12	<.005
Benign pigmented tumors	58	8.20%	2.545	11.00%	-2.80%	11.59	<.001
Benign epithelial tumors	56	7.90%	4.817	20.90%	-13.00%	95.02	<.001

Abbreviation: STD, sexually transmitted disease.

^aThe difference in frequency between groups expressed as a percentage.
Level of statistical significance.

immigrants in Spain, may lead to a serious health problem due to its ease of transmission between individuals and especially between family members. Thus, we are considering a further study of the prevalence of these mycoses in the

immigrant population in coordination with primary care services, since this form of mycosis can involve many carriers who may continue to be a source of this disease if they do not visit their physician and receive appropriate treatment.

Table 2. Comparison of the Frequency of Specific Infectious Diseases Between the Immigrant and Nonimmigrant Population

Diagnosis	Immigrant Population 706 Patients		Nonimmigrant Population 20 350 Patients		Difference, % ^a	χ^2 Test	P ^b
	Cases	%	Cases	%			
Tinea capitis	25	3.54%	10	0.00%	3.54%	501.36	<.001
Onychomycosis	28	4.00%	260	1.10%	2.90%	36.50	<.001
Scabies	19	2.69%	97	0.40%	2.29%	61.07	<.001
Genital warts	12	1.70%	56	0.20%	1.50%	43.01	<.001
Syphilis	5	0.70%	4	0.00%	0.70%	75.71	<.001

^aThe difference in frequency between groups expressed as a percentage.

^bLevel of statistical significance.

STDs are another group of noteworthy diseases in this population. We wish to highlight the fact that there were 5 new cases of syphilis diagnosed among the immigrant patients compared to 4 new cases in the nonimmigrant population. The statistical significance of this finding is too high to be explained only by the difference in age structure of the population groups. On the other hand, we have not found any epidemiological studies in the literature with which we can compare our results to those from other dermatology services. We believe that the incidence of these diseases in this population group may indeed be higher and that preventive measures should be implemented.

Skin disease caused by zooparasites was also more frequent among the Latin American immigrants, notably scabies, which occurred more often in this group. Some of the patients made repeat visits to hospital, during which it was confirmed that several families lived in a single household, suggesting that such conditions favor increased transmission and persistence of this disease.

There was also a higher incidence of certain types of dermatosis among immigrants, such as atopic dermatitis and contact dermatitis. In this case, we suggest that the appearance of this type of disease may be favored by climate change in the immigrants' countries of origin, as well as their working conditions, where many are employed as construction workers.

Conclusions

We find ourselves faced with diseases that, due to social and health care improvements, had become exceptional in Spain. We must also deal with imported diseases such as tinea capitis, which is caused by species of fungus hardly ever observed in this country. In addition, these disease may adopt different forms in other races, specifically in black people. It would be interesting to conduct similar

epidemiological studies in other Spanish regions to compare results and establish educational guidelines regarding the dermatological conditions seen in these growing population groups, as well as to develop social and health care measures to prevent some of these diseases.

Conflicts of Interest

The authors declare no conflicts of interest.

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