Nosologic profile of dermatologic visits in Brazil *

*Perfil nosológico das consultas dermatológicas no Brasil**

Sociedade Brasileira de Dermatologia *

Abstract: BACKGROUND: Although crucial for health policies, there are few data on frequency of skin diseases in Brazil. OBJECTIVES: To generate data on the main dermatologic diagnoses in the country. METHODS: Diagnoses made at outpatient's visits were collected by a sample of dermatologists in their private offices and at 49 residency services, during one week (May 22-26, 2006). A form was filled in with clinical and demographic data, with no patient identification. RESULTS: The main diagnosis was acne accounting for 14% of visits, followed by superficial mycoses (8.7%), pigmentation disorders (8.4%) and actinic keratosis (5.1%). Actinic keratosis was the main reason for consultation in the group aged 65 years and over (17.2%), followed by basal cell carcinoma (9.8%). Leprosy ranked twentieth in the country as a whole and fourth in Central West region. CONCLUSION: The morbidity profile of dermatological outpatient's visits in Brazil is a pattern related to the specialty and not to primary healthcare. The findings stress the relevance of acne, skin cancer and leprosy as public health problems and point out to continuous investment in health education.
Keywords: Brazil; Dermatology; Diagnosis; Skin diseases; Skin diseases/epidemiology

Resumo: *FUNDAMENTOS: Informações epidemiológicas são fundamentais para a política de saúde e são limitadas para o conjunto das nosologias dermatológicas no país. OBJETIVOS: Verificar a freqüência dos principais diagnósticos na prática dos dermatologistas. MÉTODOS: Os diagnósticos referentes ao atendimento ambulatorial dermatológico foram levantados durante uma semana por uma amostra de dermatologistas e 49 serviços que oferecem residência médica. Os dados clínicos e demográficos não identificados de cada paciente foram coletados em formulário padronizado. RESULTADOS: Os resultados apresentados foram baseados em 57 mil consultas dermatológicas. O motivo principal de consulta foi acne, com 14% dos atendimentos, seguida pelas micoses superficiais (8,7%), transtornos da pigmentação (8,4%) e ceratose actínica (5,1%). A ceratose actínica foi a causa de consulta mais freqüente no grupo de 65 anos e mais (17,2%), seguida pelo carcinoma basocelular (9,8%). A hanseníase foi a 20ª causa em todo o país, mas a quarta na Região Centro-Oeste. CONCLUSÃO: O perfil nosológico do atendimento ambulatorial dos dermatologistas é relacionado ao especialista e não predominantemente ao atendimento primário. Os resultados reforçam a importância da acne, do câncer de pele e da hanseníase como problemas de saúde pública, para os quais deve haver investimento contínuo em educação para saúde.*
Palavras-chave: Brasil; Dermatologia; Dermatopatias; Dermatopatias/epidemiologia; Diagnóstico

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INTRODUCTION

Epidemiological information is essential in orienting health policies. In Brazil, such information regarding dermatologic disorders is scarce. The data available, although limited geographically and demographically, depict high frequency of skin disorders.[1]

Some studies show that dermatologic problems are very common. A population-based prevalence survey carried out in France[2] estimated that the proportion of people reporting any dermatologic injury since birth, was of 86.8%, and that the proportion of those reporting dermatologic problems in the last 24 months was of 43.2%, which, unquestionably, indicates that dermatologic issues are extremely frequent relative to other health problems. A population-based survey performed in Sweden[3] also found a huge frequency of skin disorders, with a prevalence of 20.5%, being 23.3% in females and 17.5% in males.

However, skin problems are underscored by those responsible for defining healthcare policies, because they are health problems of low lethality and the underestimation of their morbidity. Several studies show that dermatologic disorders significantly impact the quality of life of patients, especially chronic ones,[3-5] stressing the need of upgrading them to health problems by public policy makers, since they actually are considered by the patients affected. Individuals with dermatologic diseases perceive their health as impaired, feel limited in their daily activities and experience loss of vitality. Dermatologic disorders are, therefore, limiting, cause absenteeism at school and at work, and those affected are more prone to depression.[6]

In 2004, the estimated expenditure with skin diseases n the USA was of 39.3 billion dollars, of which, 29.1 billion of direct medical costs and 10.2 billion, due to loss of productivity.[7] Dermatologic care costs are also significantly expensive for health systems of underdeveloped countries, where it is estimated that 10% of all visits occur due to skin diseases.[8] This cost may, indubitably, be higher, when the referral system is not proper and the rate of solving of dermatologic problems at the healthcare system is low; some of these could be solved in outpatient visits, but because of mismanagement, may eventually require hospitalization, with further cost increase.

A study conducted at a dermatology outpatient clinic in Ethiopia showed that 31% of patients had been previously seen by other health professionals and 90.1% of those had been misdiagnosed and hence, mismanaged.[9] In Nigeria, in a university hospital outpatient clinic, 28.6% of cases seen were of dermatologic diseases, and the authors advocate the need for improved training of health workers on the diagnosis and treatment of common skin diseases.[10]

On the other hand, in the USA, although a great number of consultations for skin diseases are given by primary care physicians, – clinicians, pediatricians and family physicians, they treat only few of them, because most are referred to specialists. The authors conclude that, due to the greater skill of specialists to diagnose and treat skin disorders, this specialist/non-specialist composition should be considered in planning healthcare centers and educational programs for better dermatologic care.[11]

The *Sociedade Brasileira de Dermatologia* (SBD) performed this study on the demand for specialists in both, public and private settings, with the aim of generating information on the main causes of visits to dermatologists, and thus to contribute to establishing public health policies in Brazil.

MATERIAL AND METHODS

From the registry of 4,400 SBD-certified dermatologists, 932 were selected proportionally to the number existing in their State of activity. The sample also included government-sponsored (SUS) outpatient clinics of university hospitals with medical residency and SBD-certification, of all regions of Brazil. The registered services were considered "right extract" in the sample (of 60 questionnaires sent, 49 were returned). Taken together, from the registered services and from the 932 physicians, 98% of questionnaires were returned.

From May 22 to 26, 2006, the ICD – version 11 diagnosis, the information on whether it was the initial or the return visit, skin color, age and sex of every patient seen, were recorded.

All data were listed for the descriptive analysis of the main causes of visits to the dermatologists, as a whole in the sample, according to age group, to whether the patient was seen at a private or public health setting, and to the country's region.

Statistical analysis

The two main reasons for visits in each age group were identified and chosen for the assessment of their influence on the diagnosis of the remaining variables as a whole. For this purpose, logistic regression for each reason for visits was calculated. The dependent variable of each regression was the diagnosis for each cause, transformed into a *dummy* variable. For example, to assess the factors associated to the likelihood of the diagnosis of acne, a zero-value variable encompassing all other diagnoses was created and a value of one for the diagnosis of acne. Setting (private as reference), sex (male as reference), age group (the 65 years and older group as reference), skin color (white as reference) and country region (the Southeast Region as reference) were used as independent variables. The odds ratio (OR) was used as a measurement

of association, estimated by logistic regression, that is, controlled by the remaining independent variables.

Logistic regression was also performed for the three main diseases with the highest proportion of return visits among the most frequent causes, utilizing the same independent variables plus the type of case (return visit as reference).

RESULTS

Of the 57343 [favor confirmar número] patients registered, 98.3% composed the sample. Of these, 66.5% were women, 77.9%, white, 72.3% were seen in private offices, and 48.2% were first visits (44.5% from public and 49.7% from private offices). Among the 25 most frequent causes, those with the highest proportions of return visits were leprosy (78%), psoriasis (68%) and vitiligo (64%). One-fifth of patients (20%) had more than one diagnosis, and 3% of the total had three diagnoses. Regarding the main diagnosis, 78.2% were confirmed by the attending physician.

The age of patients ranged between one year and 98 years, mean of 37.4 years (35.3 years for males and 38.4 years for females). Matching sex and age depicted the predominance of females in all age groups, of smaller proportion among those of less than five years of age, which was of 51.7%, and that of males, 48.3%.

Regarding the setting (public and private), the proportion of white skin color ones was lower in public offices (65.9% and 82.5%, respectively). Schooling was lower among patients of public offices, in which 65.7% of patients had not attended junior/high school, while 27.6% of the ones of private offices had not.

Table 1 shows the 25 most frequent causes of visits recorded, Table 2, the 10 most frequent causes according the age group, and Table 3, the 25 most frequent causes according to the visit setting, public or private. While Table 2 shows that the distribution of diseases according to age groups corresponds to what is expected from epidemiologic knowledge, Table 3 suggests that in the public setting, chronic diseases are more common than in the private one.

In order to further explore this finding, the ratio of total and first visits for different diagnoses and for the setting was calculated. This ratio is an estimate of the average number of visits per diagnosis, being the ratio of the incident and the prevalent visits (follow-up plus new cases) for each disease. The median of this ratio was 1.72 in the public and 1.59 in the private settings. However, the visits due to the diagnoses with ratio of three or higher, that is, diagnoses that generate, in average, three or more office visits, corresponded to 19.7% of the total number of public setting visits and only 1.7% of those of private setting visits.

It is worth mentioning that 80% of patients with the diagnosis of leprosy are seen in the public setting, whereas 85% of the ones with non-scarring and androgenic alopecia are seen in private setting.

The proportion of diagnoses also varies according to the country macro regions (Table 4). The highest variability occurs regarding actinic keratosis – ranging from 2.89%, in the Northern Region to 7.4%, in the Southern Region; atopic dermatitis– from 4.8%, in the Northern Region to 2.25%, in the Southeast Region; scabies – 0.78% in the Southern Region; leprosy – from 4.02% in the Midwestern Region, where it is the fourth most frequent cause of visits, to 0.56% in the Southern Region; and simple chronic lichen and prurigo – ranging from 3.03%, in the Northern Region, where it is the eight cause of visits, to 1% in the Southeast Region.

Since the different proportion of certain diagnoses in certain regions may be explained by age, race and sex composition, as well as by the relative importance of care in the public and private settings, and in order to show the effect of each of these variables relative to the others, the logistic regression results for the two main causes of visits in each age group are shown in Table 5.

Figure 1 shows the histogram of the age group distribution of the most frequent diseases.

The distribution of the diagnoses represented as three-numeric-digit ICD classification showed that 98.12% of the acne cases had been classified with only two digits or as acne vulgaris; 99.06% of the atopic dermatitis cases had been classified with only two digits; 93.05% of the actinic keratosis cases were not further specified, either; among the superficial mycoses, 42% corresponded to onychomycosis, 32.56% to non-specified dermatophytoses, 18.27% to pityriasis versicolor, and 4.10% of non-specified candidiasis. Among the disorders of pigmentation, 61.88% were cases of chloasma; 26.62%, other forms of hyperpigmentation or non-specified pigmentation disorders; 2.57%, freckles; and 2.32%, leucoderma not classified elsewhere.

DISCUSSION

The results shown must be interpreted considering some limitations of the study. Although it is a country-wide survey, the assessment of diagnoses from spontaneous demand outpatient visits may be non-representing of the dermatologic conditions affecting the general population, with possible demand, and availability and tradition of regional service offered biases. However, the similar disease profiles found among the different regions suggest consistency of study results.

The predominance of females may be consistent, for instance, with the greater concern and care of women with their skin, which is supported by data from other studies, such as the greater concern

Table 1: Main reasons of recorded visits

Setting	ICD-10 (Letter + 2 digits)	N.	%	acc. %
1	L70- Acne	8,049	14	14
2	B35-B37- Superficial mycoses	5,003	8.7	22,8
3	L81- Pigmentation disorders	4,822	8.4	31,2
4	L57- Actinic keratosis	2,953	5.1	36,3
5	L23-L25- Contact dermatitis	2,241	3.9	40,2
6	L21- Seborrheic dermatitis	2,005	3.5	43,7
7	B07- Viral warts	1,958	3.4	47,1
8	D22- Melanocytic nevi	1,881	3.3	50,4
9	L30- Dermatites: eczema/ dyshidrosis / pityriasis alba	1,520	2.7	53,1
10	L40 Psoríase	1,422	2.5	55,5
11	L20 Dermatite atópica	1,391	2.4	58
12	L82- Seborrheic keratosis	1,305	2.3	60,3
13	C80- Not specified / SE malignant neoplasm/ basal cell carcinoma	1,248	2.2	62,4
14	L65- Non-scarring alopecia/telogen effluvium	1,221	2.1	64,6
15	L85- Epidermal thickening/skin xerosis	974	1.7	66,3
16	L72- Skin and subcutaneous follicular cysts	891	1.6	67,8
17	L64- Androgenetic alopecia	863	1.5	69,3
18	B86- Scabies	799	1.4	70,7
19	L80- Vitiligo	780	1.4	72,1
20	A30- Leprosy	708	1.2	73,3
21	L28- Chronic simple lichen and prurigo	678	1.2	74,5
22	Q82- Congenital skin malformations/achrochordon	636	1.1	75,6
23	L50- Urticaria	633	1.1	76,7
24	L73- Other follicular conditions/folliculitis	624	1.1	77,8
25	L90- Atrophic striae/scar and skin fibrosis	564	1	78,8
All diagnoses		**57343**	**100**	**100**

women have with sun exposure protection. This hypothesis may explain the sex distribution, but the predominance of women referred to dermatologists is also observed in countries such as Iran12, where the cultural determinants are different. Biological characteristics also contribute for the predominance of women among the dermatology patients.[13]

A very relevant finding of the present study is the great dispersion of diagnoses – in a period of only one week, 1010 different ICD subcategories (letter and three digits) were recorded. Acne, the main cause of visits, represents only 14% of total diagnoses, and starting from the fourth cause, i.e., actinic keratosis, each one diagnosis represents less than 5% of total number of visits. This is an expected phenomenon regarding visits to specialists, as the referred demand in the health system includes rare diseases, of diagnosis and follow-up by the specialist. This finding contrasts with the demand composition for dermatologists in African and Asian countries,[9,10,12] where infectious and parasitic diseases are the cause of over 30% of visits to dermatologists, which resembles the primary care demand composition due to skin conditions in countries such as the USA.[14]

The record of scabies among the main causes of dermatology visits in Brazil, especially in the Northern Region, points to the low primary care solving ability, at least regarding diagnosis, treatment and hygiene recommendations for this infestation.

The main causes of visits according to the age group are of known epidemiologic relevance. Acne, the first of them, is likewise in the USA.[11,15] Due to its high frequency, the possibility of inducing psychological stress, permanent scarring, school absenteeism and the persisting misconception on the factors worsening the disorder, even among health professionals,[16,17] indicate the need for hygiene education for adolescents, as a strategy for, both, stimulating self-care and the seeking behavior for specialized healthcare, when necessary.

Atopic dermatitis caused 14% of visits of those under 15 years of age, representing a dermatologic ailment of great epidemiologic importance and transcendence in many parts of the world,[18-21] as the costs with it for the healthcare system are also relevant.[22]

Regarding superficial mycoses, indeed very frequent disorders in the general population, it is important to stress that the distribution of the different types,

TABLE 2: Main reasons of recorded visits, per age group

	Up to 15 years			15 to 39 years	
1	L70	Acne	13.9	L70 - Acne	26.6
2	L20	Atopic dermatitis	13.7	L81 - Pigmentation disorders	9.4
3	B07	Viral warts	8.2	B35 - B37- Micoses superficiais	8
4	B35	B37- Superficial mycoses	6.9	L23 - L25- Contact dermatitis	4
5	L30	Dermatites: eczema/dyshidrosis /pityriasis alba	6.5	L21 - Seborrheic dermatitis	3.9
6	B08	Other viral infections/ molluscum contagiosum	5.1	D22- Melanocytic nevi	3.7
7	B86	Scabies	3.6	B07- Viral warts	3.3
8	L21	Seborrheic dermatitis	3.5	L65- Non-scarring alopecia/telogen effluvium	3
9	L23	L25- - Contact dermatitis	3.1	L64- Androgenetic alopecia	2.2
10	D22	Melanocytic nevi	3	L30- Dermatites: eczema/dyshidrosis pityriasis alba	2.2
	40 to 64 years			**65 years and +**	
1	L81	Pigmentation disorders	11.6	L57- Actinic keratosis	1.2
2	B35	B37- Superficial mycoses	10.6	C80- Not specified / SE malignant	9.6
3	L57	Actinic keratosis	8.8	B35- B37- Superficial mycoses	8.2
4	L23-L25	Contact dermatitis	4.2	L82- Seborrheic keratosis	6.3
5	L82	Seborrheic keratosis	4	L85- Epidermal thickening/skin xerosis	4.2
6	L40	Psoriasis	3.7	C44- Skin malignant espinocelular neoplasm squamous cell carcinoma	4
7	D22	Melanocytic nevi	3.5	L81- Pigmentation disorders	3.7
8	L21	Seborrheic dermatitis	3.4	L23-L25- Contact dermatitis	3.5
9	C80	Not specified / SE SE malignant neoplasm/basal cell carcinoma	2.9	L40- Psoriasis	2.7
10	B07	Viral warts	2.4	D04- Skin carcinoma *in situ* (Bowen disease)	2.3

with the predominance of onychomycosis (42% of all superficial mycoses) and the low proportion of candidiasis, reveals how referrals to the dermatologist occur, that is, visits to the specialist are associated to greater treatment complexity.

The predominant diagnoses of actinic keratosis and basal cell carcinoma among patients with 65 years or older, reinforces the already known need for skin cancer prevention in Brazil. It is noteworthy that 26.8% of such patients had one of the mentioned diagnoses. In Figure 1, it can be seen that the mode (the most frequent value) of the actinic keratosis distribution is found between 55 and 59 years, and that of basal cell carcinoma, between 65 and 69 years.

Attempts were made to assess independent risks by using logistic regression, because the diagnoses depend on sex, age group, visit setting and country region. Such data (Tables 1 to 4) depend of the distribution of other variables not explained in the tables. The odds ratios (OR) found estimate the number of times that the likelihood of a certain diagnosis is higher according to the variable being analyzed, supposing the others remain constant.

By examining Table 6, a noteworthy observation is that the diagnosis of actinic keratosis is more likely in the private setting and that of basal cell carcinoma, in the public one. The diagnosis of actinic keratosis is also more likely among women, and that of basal cell carcinoma, among men. These two diagnoses are more likely in the 60 to 64 yeas age group than in the over 65 years group, with similar setting, sex, color and region distribution in the two groups. These findings suggest that the diagnosis of actinic keratosis is more likely in patients with greater awareness of health problems and easier access to healthcare services than those with the diagnosis of basal cell carcinoma. If this hypothesis is true, health education and greater accessibility to dermatologists could reduce the number of basal cell carcinoma diagnoses, due to increased number of actinic keratosis treatments.

It should be stressed that black skin is less likely to be affected by either of these two conditions, but the mixed skin color is not significantly associated with either of them. The absent influence of mixed skin color may be explained by color misclassification. Misclassifying mixed and white skin colors tends to weaken any possible statistical association of the likelihood of such diagnoses with the white compared to the

Table 3: Main reasons of recorded visits per public and private sector

Setting	Public ICD-10 (Letter + 2 digits)	%	Private ICD-10 (Letter + 2 digits)	%
1	B35-B37- Superficial mycoses	9.8	L70- Acne	16.4
2	L70 Acne	7.9	L81- Pigmentation disorders	9.6
3	L81 Pigmentation disorders	5.2	B35-B37- Superficial mycoses	8.3
4	L40 Psoriasis	4.8	L57- Actinic keratosis	5.5
5	L57 Actinic keratosis	4.2	L23-L25- Contact dermatitis	3.9
6	A30 Leprosy	4	B07-Viral warts	3.8
7	L23-L25 Contact dermatitis	3.9	D22- Seborrheic dermatitis	3.7
8	C80 Not specified/SE malignant neoplasm/basal cell carcinoma	3.4	L21- Dermatite seborréica	3.7
9	L30 L30- Dermatites: eczema/dyshidrosis /pityriasis alba	3.1	L65- Non-scarring alopecia/telogen effluvium	2.5
10	L21 Seborrheic dermatitis	3.1	L30- Dermatites: eczema/dyshidrosis /pityriasis alba	2.5
11	L20 Atopic dermatitis	3	L82- Seborrheic keratosis	2.4
12	L80 Vitiligo	2.7	L20- Atopic dermatitis	2.2
13	B07 Viral warts	2.5	L64- Androgenetic alopecia	1.8
14	D22 Melanocytic nevi	2.2	L85- Epidermal thickening/skin xerosis	1.7
15	L82 Seborrheic keratosis	1.9	C80- Not specified/SE malignant neoplasm/ basal cell carcinoma	1.7
16	B86 Scabies	1.7	L72- Skin and subcutaneous follicular cysts	1.6
17	C44 Skin malignant neoplam/squamous cell carcinoma	1.7	L40- Psoriasis	1.6
18	L85 Epidermal thickening/skin xerosis	1.6	B86- Scabies	1.3
19	L28 Chronic simple lichen and prurigo	1.5	L50- Urticaria	1.1
20	L72 Skin and subcutaneous follicular cysts	1.4	L73- Other follicular	1.1
21	L93 Lupus erythematosus	1.3	L90- Atrophic striae/scar and skin fibrosis	1.1
22	L63 Alopecia areata	1.2	Q82- Congenital skin malformations	1.1
23	L98 Skin and subcutaneous conditions ulcer and self-inflicted dermatitis	1.2	L28- Chronic simple lichen and prurigo	1.1
24	Q82 Congenital skin malformations /achrochordon	1.2	L60- Nail conditions	1
25	L65 Non-scarring alopecia/telogen effluvium	1.1	L80- Vitiligo	0.8
All diagnoses		**100**	**All diagnoses**	**100**

Figura 1 - Histograma

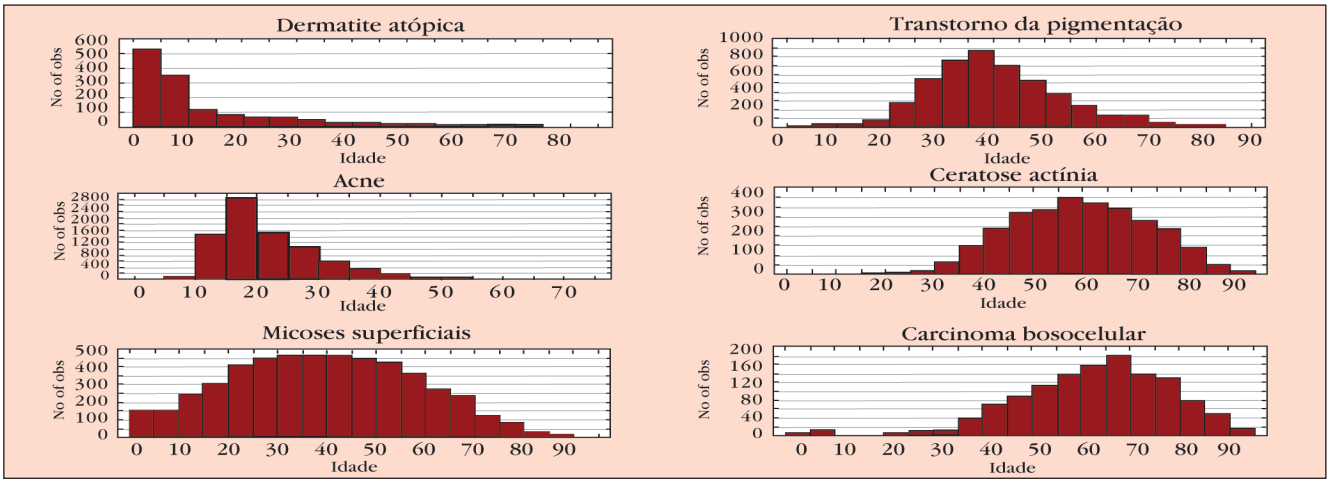

Table 4: Proportion of the 25 most frequent diagnoses per Brazilian regions

	Diagnosis		North	Northeast	Southeast	South	Midwestern	Brazil
1.	L70	Acne	13.04	14.59	13.87	12.83	18.67	14.04
2.	B35-B37	Superficial mycoses	9.23	9.26	9.14	6.84	7	8.72
3.	L81	Pigmentation disorders	5.85	7.67	8.65	8.06	9.12	8.41
4.	L57	Actinic keratosis	2.89	4.38	4.99	7.40	3.95	5.15
5.	L23-L25	Contact dermatitis	2.96	4.13	3.92	3.99	3.45	3.91
6.	L21	Seborrheic dermatitis	4.72	3.82	3.51	3.16	2.92	3.50
7.	B07	Viral warts	2.96	2.73	3.69	3.30	2.04	3.41
8.	D22	Melanocytic nevi	2.82	2.71	3.16	4.43	3.25	3.28
9.	L30	Dermatites: eczema /dyshidrosis/pityriasis alba	3.59	2.18	2.78	2.46	2.14	2.65
10.	L40	Psoriasis	1.69	2.57	2.40	3.17	1.84	2.48
11.	L20	Atopic dermatitis	4.79	2.45	2.31	2.25	3.18	2.43
12.	L82	Seborrheic keratosis	1.34	2.30	2.24	2.70	1.98	2.28
13.	C80	Not specified / SE malignant neoplasm/basal cell carcinoma	0.42	2.26	2.13	2.66	2.08	2.18
14.	L65	Non-scarring alopecia/ /telogen effluvium	0.78	1.14	2.34	2.42	1.54	2.13
15.	L85	Epidermal thickening /skin xerosis	1.27	1.15	1.90	1.58	0.84	1.70
16.	L72	Skin and subcutaneous follicular cysts	1.62	1.34	1.65	1.47	1.04	1.55
17.	L64	Androgenetic alopecia	1.06	1.05	1.57	1.85	0.94	1.50
18.	B86	Scabies	3.38	2.49	1.28	0.76	1.07	1.39
19.	L80	Vitiligo	1.62	1.56	1.33	1.08	1.88	1.36
20.	A30	Leprosy	1.90	1.96	1	0.56	4.02	1.23
21.	L28	Chronic simple lichen and prurigo	3.03	1.89	1	1.07	1.27	1.18
22.	Q82	Congenital skin malformations/achrochordon	1.20	1.17	1.07	1.29	0.90	1.11
23.	L50	Urticaria	0.85	1.62	1.06	0.96	1.01	1.10
24.	L73	Other follicular conditions /folliculitis	1.20	1.34	1.05	0.90	1.41	1.09
25.	L90	Atrophic striae /scar and skin fibrosis	0.70	0.81	1	1.02	1.17	0.98
	All diagnoses		**100**	**100**	**100**	**100**	**100**	**100**

mixed skin color.

Chronic diseases, such as leprosy, psoriasis and vitiligo, are more likely causes of visits in the public setting, and the diagnoses of leprosy and vitiligo are associated to black skin color. Since there are no variables specifically representing socioeconomic conditions, the associations found with the setting and with skin color presumably reflect the association of the two variables with the socioeconomic condition. Leprosy is known to be associated to poor socioeconomic condition, and this is a confounding, non-controlled variable in the present study, creating a bias and the association to black skin color. The association of vitiligo with black skin color likely expresses a demand bias. The skin injury of vitiligo is more readily seen in dark complexion, driving patients to seek for assistance. Moreover, the already mentioned skin color misclassification hampers the biological interpretation of this variable. This might lead to concerns that patients with chronic disorders in association with poor socioeconomic condition are not having proper access to continuing treatment. The ratio of total and first visits is higher for leprosy (5.24), than for psoriasis (3.41), or vitiligo (3.21), which may be considered low for medical follow-up of the two latter diseases, as they are estimates of the average number of visits per patient having such diagnoses.

CONCLUSION

The disease profile of the dermatology outpa-

Table 5: Odds ratio estimated by logistic regression and p-value
Most frequent diseases

Independent variables. (reference category)	DEPENDENT VARIABLES											
	Acne		Atopic dermatitis		Pigmentation disorder.		Actinic keratosis		Basal cell carcinoma		Superficial mycoses	
	OR	p	OR	p	OR	p	OR	p	OR	p	OR	p
Public sector (private)	**0.74**	**0.00**	**1.12**	**0.00**	**0.74**	**0.00**	**0.81**	**0.00**	**1.33**	**0.00**	**1.05**	**0.01**
Female (male) <15 years	1.01	0.44	1.03	0.40	**2.46**	**0.00**	**1.13**	**0.00**	**0.81**	**0.00**	**0.90**	**0.00**
(65 and +)	**4.23**	**0.00**	**11.65**	**0.00**	**0.23**	**0.00**	**0.05**	**0.00**	**0.22**	**0.00**	**0.79**	**0.00**
15-39 years (65 and +)	**9.03**	**0.00**	0.89	0.11	**2.04**	**0.00**	**0.39**	**0.00**	**0.20**	**0.00**	0.97	0.16
40-64 years (65 and +)	**0.54**	**0.00**	**0.37**	**0.00**	**2.61**	**0.00**	**5.06**	**0.00**	**2.71**	**0.00**	**1.32**	**0.00**
Mixed color (white)	0.97	0.30	**0.88**	**0.02**	**1.30**	**0.00**	0.95	0.54	1.29	0.08	1.00	0.97
Black (white)	**0.89**	**0.00**	**1.28**	**0.00**	**0.80**	**0.00**	**0.40**	**0.00**	**0.22**	**0.00**	**1.22**	**0.00**
North (Sudeste)	**0.82**	**0.00**	1.24	0.05	**0.81**	**0.03**	0.86	0.27	**0.33**	**0.00**	1.14	0.09
Reg. Region (Southeast)	1.04	0.29	**0.80**	**0.00**	0.96	0.41	1.07	0.29	**1.57**	**0.00**	**1.11**	**0.02**
South Region (Southeast)	**1.32**	**0.00**	**1.25**	**0.02**	1.01	0.85	0.89	0.18	**1.38**	**0.02**	**0.84**	**0.00**
Midwestern Region (Southeast)	**0.88**	**0.00**	0.89	0.10	**1.15**	**0.02**	**1.34**	**0.00**	**1.31**	**0.01**	**0.84**	**0.00**

Em negrito os valores estatisticamente significativos, i.e., p<0,05

Table 6: Odds ratio estimated by logistic regression and p-value
Most frequent chronic diseases

Independent variables (reference category)	Dependent variables					
	Leprosy		Psoriasis		Vitiligo	
	OR	p	OR	p	OR	p
Public sector (private)	**4.43**	**0.00**	**1.66**	**0.00**	**1.75**	**0.00**
Female (male)	**0.66**	**0.00**	**0.72**	**0.00**	1.00	1.00
<15 years (65 and +)	**0.44**	**0.00**	**0.61**	**0.00**	**2.17**	**0.00**
15-39 years (65 and +)	**1.16**	**0.04**	**0.90**	**0.03**	0.90	0.09
40-64 years (65 and +)	**1.70**	**0.00**	**1.68**	**0.00**	0.91	0.16
Mixed color (white)	1.11	0.10	1.07	0.19	0.95	0.44
Black (white)	**1.25**	**0.00**	0.99	0.90	**1.20**	**0.02**
1st visit (return visit)	**0.49**	**0.00**	**0.63**	**0.00**	**0.57**	**0.00**
North Region (Southeast)	1.39	0.05	0.79	0.16	1.01	0.96
Northeast Region (Southeast)	**1.22**	**0.03**	1.14	0.11	1.07	0.50
South Region (Southeast)	**0.38**	**0.00**	**1.42**	**0.00**	**0.77**	**0.01**
Midwestern Region (Southeast)	**2.69**	**0.00**	**0.78**	**0.04**	**1.31**	**0.02**

In bold, the statistically significant values, i.e., $p<0.05$

tient visits is related to the specialty rather than to the primary care disorders. This profile suggests that, at least in regards to scabies, the primary care diagnosis and treatment skills should be reinforced.

The results stress the importance of diseases like acne, skin cancer and leprosy as public health problems, for which continuing investments on assistance and health education should be made. ❑

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