

Vitiligo: Epidemiology and Clinical Features at a University Hospital in Buenos Aires, Argentina

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ABSTRACT

Introduction: vitiligo is a frequent dermatosis. However, there are few publications regarding its clinical and epidemiological characteristics in Latin America.

This study aimed to describe the prevalence of vitiligo, its clinical features, and comorbidities of a cohort of patients.

Methods: we performed a cross-sectional observational study, which analyzed the clinical charts of 622 patients with vitiligo evaluated at a University Hospital of Buenos Aires, Argentina, over ten years.

Results: the prevalence of vitiligo was 0.43%. 56% of patients were women. The mean age at diagnosis was 41 years. The most frequent comorbidities were thyroid disorders, alopecia areata, psoriasis, atopic dermatitis, celiac disease, type I diabetes, chronic spontaneous urticaria, and rheumatoid arthritis. Generalized vitiligo was the most frequent presentation (43%). Eighty percent of patients received treatment, and more than 90 percent were seen by at least one dermatologist.

Conclusions: the prevalence of vitiligo, clinical characteristics, and associations were similar to those published in the international literature. Of note, 20% of patients did not receive treatment, and 10% did not seek a dermatologist.

Keywords: vitiligo, epidemiology, comorbidities, autoimmunity.

Vitiligo: Epidemiología y características clínicas en un Hospital Universitario de Buenos Aires, Argentina

RESUMEN

Introducción: el vitiligo es una dermatosis frecuente; sin embargo, son pocas las publicaciones acerca de sus características clínicas y epidemiológicas en Latinoamérica.

El objetivo de este trabajo fue describir la prevalencia, las características clínicas y las asociaciones de una cohorte de pacientes.

Materiales y método: se llevó a cabo un estudio de corte transversal donde se analizaron las historias clínicas de 622 pacientes con vitiligo evaluados en un Hospital Universitario de Buenos Aires, Argentina, en un período de 10 años.

Resultados: la prevalencia del vitiligo fue de 0,43%. El 56% fueron mujeres. La edad media del diagnóstico fue 41 años. Las asociaciones más frecuentes fueron enfermedades tiroideas, *alopecia areata*, psoriasis,

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Received: 01/30/25 Accepted: 05/23/25

DOI: <https://doi.org/10.51987/Rev.Hosp.Ital.B.Aires.v45i2.557>

How to cite: López Di Noto AL, Zimman S, Mac Donald L, Distel C, Ruf M, Bodnariuk N, Bruey SA, Torre AC, Mazzuocolo LD. VEpidemiology and Clinical Features at a University Hospital in Buenos Aires, Argentina. Rev. Hosp. Ital. B. Aires. 2025;45(2):e0000557

dermatitis atópica, enfermedad celíaca, diabetes mellitus tipo I, urticaria crónica espontánea y artritis reumatoide. La forma de presentación más frecuente fue vitiligo generalizado (43%). El 80% de los pacientes recibió tratamiento y más del 90% fue atendido por al menos un dermatólogo.

Conclusiones: la prevalencia del vitiligo, sus características clínicas y asociaciones fueron similares a las encontradas en la literatura. Cabe destacar que el 20% de los pacientes no recibió tratamiento y que el 10% no fue evaluado por dermatología.

Palabras clave: vitiligo, epidemiología, comorbilidades, autoinmunidad

INTRODUCTION

Vitiligo is an acquired hypomelanosis that affects 0.5-2% of the global population, equally among males and females.¹ Epidemiological studies conducted in various countries show that up to 50% of cases manifest within the first 20 years of life and 14% before the age of 10; 30% of patients have a family history of vitiligo and a similar frequency of personal or family history of other autoimmune diseases is observed.¹⁻³

It is considered a multifactorial polygenic disorder whose etiopathogenesis is not yet fully understood. Several theories have been proposed to explain the interaction of genetic, immune, and environmental factors that lead to impaired function and survival of melanocytes. This results in a decrease or absence of melanin production, and the development of the disease.⁴

Vitiligo is associated with various autoimmune disorders, the most frequent being thyroid diseases. More recently, it has also been linked to vitamin D deficiency, which is thought to play a role in its development.⁴

It is recognized by the progressive appearance of achromic and hypochromic macules with well-defined borders, typically displaying a symmetrical pattern. The lesions have a ubiquitous distribution, with a preference for acral areas, periorificial facial regions, and trauma-exposed sites (Koebner phenomenon).^{1,2}

Vitiligo is classified into segmental (SV) and non-segmental (NSV) types based on the distribution of lesions. Within NSV, there are several subtypes, including acral-facial, mucosal, generalized, universal, and mixed (referring to the predominant location and extent of the lesions).⁵⁻⁷

Vitiligo can affect the quality of life and have a social impact due to the stigma associated with lesions in areas such as the face, hands, scalp, or genitals. Because of this, multidisciplinary care and a comprehensive approach to the patient are essential in treatment. In the case of the Argentine population, where medium skin phototypes predominate and the contrast between healthy skin and vitiligo is noticeable, this need becomes particularly relevant.⁸

Most published studies on the epidemiological characteristics of vitiligo have been conducted in European and North American populations, and information on these aspects in Latin American populations is scarce.⁹ Our study aims to provide epidemiological information on the prevalence and clinical characteristics of vitiligo in a patient cohort,

in order to contribute to a better understanding of the disease landscape and the unmet needs related to vitiligo in Argentina. Ultimately, the aim is to improve the care of patients with vitiligo in our setting.

MATERIALS AND METHODS

We conducted a cross-sectional study of patients enrolled in the health plan (HP) of a university hospital in Buenos Aires, Argentina, between April 1, 2011 and March 31, 2021. Argentina has a segmented healthcare system composed of three main sectors: public, private (prepaid systems), and social security (obras sociales). The latter two serve approximately 18 million people across around 300 entities. Within this context, the HP provides comprehensive healthcare through two major hospitals and 24 satellite centers. It serves both individuals who subscribe to the plan –which currently has around 174,000 members– and those affiliated with more than 200 social security funds and prepaid systems.

The population served by the HP is mostly from urban areas of the city of Buenos Aires. The city covers an area of 202 km² and has a subtropical climate. It is located on the western shore of the Río de la Plata and has a population of 3,120,000 inhabitants (2022 Census). Approximately 92% of the population is white and of European descent, while the rest is composed of Indigenous peoples and other ethnic groups. The PS affiliates represent a population that is broadly reflective of much of the country.

The study protocol was approved by the Ethics Committee for Research Protocols (CEPI) of our institution. Since 1998, our institution has operated an internally developed health information system that includes both clinical and administrative data. Its electronic health record (EHR) system, called *Itálica*, is an integrated, modular, problem-oriented, and patient-centered system that operates across various clinical settings (outpatient, inpatient, emergency, and home care). Recently, it was certified by the Healthcare Information and Management Systems Society (HIMSS) at level 7 of the Electronic Medical Record Adoption Model (EMRAM), making it the first hospital in Argentina and the second in Latin America to reach this stage. For this study, we initially retrieved data for all patients whose electronic health records (EHRs) listed “vitiligo,” “achromic or hypochromic macules,” or “achromic or hypochromic patches” as a diagnosis or clinical problem during the study period. All patients who were active

members of the health plan (HP) and had a diagnosis of vitiligo confirmed by a general practitioner, internist, or dermatologist –based on a precise clinical description– were included. In uncertain cases, we reviewed the EHR and validated the diagnosis by the principal investigator.

To obtain the denominator for estimating prevalence, we calculated the number of patients affiliated with the HIBA health plan as of the midpoint of the study period (April 1, 2016). For each patient, we collected data on epidemiological characteristics, clinical manifestations, autoimmune comorbidities, family history of vitiligo and other diseases, and treatment received.

Statistical Analysis

We calculated prevalence by dividing the number of HP-affiliated patients diagnosed with vitiligo by the total number of active PS affiliates at the midpoint of the study period. In the descriptive analysis, quantitative variables were expressed as mean and standard deviation or as median and interquartile range (25-75), depending on the data distribution. Qualitative variables were reported as absolute and relative frequencies. Crude vitiligo prevalence and age- and sex-specific prevalence were estimated. Standardized rates were presented using the Argentine standard population based on the 2022 census, as well as the World Health Organization (WHO) global standard. Corresponding 95% confidence intervals were estimated. A significance level of less than 5% was considered. We performed statistical analysis using STATA 13.0®.

RESULTS

Out of a total of 138,700 active PS affiliates at the midpoint of the study period, 622 were diagnosed with vitiligo, with an estimated prevalence of 4.3 per 1,000 individuals (95% CI: 4.0-4.7). Of these, 56.11% were female. The prevalence in women was 3.99 per 1,000 (95% CI: 3.57-4.44), while in men it was 4.87 per 1,000 (95% CI: 4.31-5.49). This difference results from the fact that the number of female members in this health system outnumbers the number of male members. Therefore, although the majority of cases were identified in women, when adjusted for the total number of affiliates a slight predominance in men was observed. The mean age at diagnosis was 41 years (SD 21.9 range 1-99 years). Table 1 presents the demographic characteristics of the population.

Comorbidities are described in Table 2. Thyroid disorders were the most frequent. Other concomitant conditions identified included alopecia areata (3.07%), psoriasis (2.76%), atopic dermatitis (1.62%), celiac disease (1.3%), type 1 diabetes mellitus (0.97%), chronic spontaneous urticaria (0.81%), and rheumatoid arthritis (0.65%). Serum vitamin D levels were assessed in 38.57% of patients.

Among those for whom this test was available, 84.16% presented some degree of hypovitaminosis (Table 3).

The characteristics of the clinical manifestations observed in patients are detailed in Table 4. The most

Table 1. Demographic Characteristics

(n = 622)	n (%)
Sex	
Female	349 (56.11%)
Male	273 (43.89%)
Age (years)	
Range	1-99
Mediaan (SD)	41 (21,9)

frequent clinical form of vitiligo was generalized (44.56%), while the universal type was the least common (2.10%).

A total of 78.86% of patients received some kind of treatment. These are described in Table 5.

DISCUSSION

This study provides evidence on the prevalence, clinical characteristics, and comorbidities of vitiligo in a closed healthcare system representative of the city of Buenos Aires, Argentina. Most reported prevalence rates range between 0.5% and 2%, although some data indicate that in certain countries, this rate differs (such as in China (0.1%) or India (8%).¹ This variation in the frequency of this condition according to the geographic region studied highlights the importance of studies that evaluate it across different areas, as well as the implications of genetic predisposition in the pathogenesis of the disease.²

In our case series, 56.11% of cases were female, which is consistent with previously published studies. Most authors estimate that –although the disease affects both sexes equally– this slight difference may be due to women seeking medical care more frequently because of the cosmetic impact of the disease.¹⁻³ However, when calculating the frequency of the condition relative to the number of PS enrollees by sex, we found it was more frequent in males. These findings are similar to those reported by Handa et al.¹⁰ in a study conducted on 1,436 patients over five years in India, which showed a higher proportion of affected males (54%).

The mean age at the time of diagnosis was 41 years, which appears high considering that half of all patients develop the condition before the age of twenty and 87% before the age of 30.^{1,2} This may be due to underdiagnosis of the disease, delayed consultation with a specialist, or lack of interest on the part of the patient in pursuing treatment, given that vitiligo is an asymptomatic condition with no systemic involvement reported to date.

In most of the literature reviewed, the average age at the time of diagnosis ranges from 25 to 33 years.^{10,12} However, two studies—one conducted in the Mexican population and another in Argentina—reported a mean age at the time of consultation of 41.5 and 42 years, respectively.^{9,13} The similarities found between these publications and our case series may reflect a connection

Table 2. Comorbidities*

	n (%)
<i>Thyroid disorders (n = 587)</i>	
Hypothyroidism, Hashimoto thyroiditis, or elevated TSH	116 (19.76%)
ATPO, ATg, and/or anti-TSHR antibodies	24 (4.09%)
Hyperthyroidism, Graves disease, or decreased TSH	13 (2.21%)
<i>Psoriasis (n = 617)</i>	
Atopic dermatitis (n = 617)	19 (3.07%)
Dermatitis atópica (n = 617)	10 (1.62%)
Celiac disease (n = 617)	8 (1.30%)
Type 1 diabetes mellitus (n = 617)	6 (0.97%)
Chronic spontaneous urticaria (n = 617)	5 (0.81%)
Rheumatoid arthritis (n = 617)	4 (0.65%)
Uveítis (n = 617)	2 (0.32%)
Pernicious anemia, Addison disease, ITP, autoimmune oophoritis/primary ovarian insufficiency (n = 617)	1 (0.16%)
Frontal fibrosing alopecia (n = 174)	33 (18.97%)

*The various comorbidities could not be assessed in the entire population, as some patients had not undergone clinical evaluation or laboratory testing for this purpose. For this reason, each comorbidity specifies the number of patients studied (n) and the number (%) who presented the condition.

Table 3. Vitamin D Levels*

(n = 622)	n (%)
Normal level	38 (6.10%)
Insuficiencia leve	83 (13.34%)
Mild insufficiency	104 (16.72%)
Deficiency	15 (2.41%)
Unknown	382 (61.41%)

*Deficiency < 10 ng/mL, moderate insufficiency 10-20 ng/mL.

Table 4. Clinical Characteristics of vitiligo

(n = 570)	n (%)
Generalized	254 (44.58%)
Acrofacial	160 (28.07%)
Focal	107 (18.77%)
Mucosal	21 (3.68%)
Segmental	16 (2.80%)
Universal	12 (2.10%)

*Data available for 570 patients.

Table 5. Treatment

(n = 579)	n (%)
Received treatment ¹	457 (78.92%)
Topical corticosteroids	304 (52.50%)
Topical calcineurin inhibitors	281 (48.53%)
Phototherapy	135 (23.32%)
Catalase and superoxide dismutase	27 (4.66%)
Calcipotriol	18 (3.11%)
Minocycline	11 (1.90%)
Oral corticosteroids	10 (1.73%)
Depigmenting treatment	7 (1.21%)
Methotrexate	1 (0.17%)
Surgical treatment	1 (0.0%)
Did not receive treatment	122 (21.07%)

* Data available for 579 patients.

¹ 58.21% of patients received more than one treatment.

related to population characteristics, geographic and climatic conditions, as well as social customs.

Vitiligo has been shown to be associated with various autoimmune diseases. Our findings confirm the

associations observed in other populations. These data support what has been proposed in several publications suggesting that, in patients with vitiligo, screening through laboratory tests should be performed for thyroid disease (TSH and anti-thyroperoxidase antibodies), as well as for other autoimmune diseases depending on the findings from the medical history and detailed clinical examination (e.g., blood glucose, complete blood count, anti-transglutaminase antibodies, deamidated gliadin peptide antibodies, anti-endomysial antibodies, anti-parietal cell antibodies).^{1-3,9,14}

The percentage of patients with hypothyroidism in our series was higher than that reported in most published studies, where it was present in 10% of patients with vitiligo.³⁻¹⁴ When reviewing other case series from Latin American countries, such as Mexico, we found results similar to those observed in our series (22%).¹³ Both countries share a Hispanic heritage, although their ethnic composition differs, and these findings (as well as the higher age at diagnosis) may be explained by other factors common to both regions.

Some recent publications have linked vitiligo to an increased risk of developing cardiovascular diseases. This evidence was not available at the time of this study, so those variables were not analyzed in this population. Nevertheless, based on the existing literature, a comprehensive cardiovascular assessment might be advisable in patients with vitiligo.¹⁵

The role of vitamin D in certain skin diseases has gained considerable attention in recent years.¹⁶⁻¹⁹ The active form of vitamin D, 1,25-dihydroxyvitamin D₃, is a hormone that regulates calcium and bone metabolism, controls cellular proliferation and differentiation, and has immunoregulatory functions. For this reason, low levels of vitamin D₃ (due to its immunosuppressive properties) have been suggested to be associated with multiple autoimmune diseases, including vitiligo.¹⁸

Most of our patients did not have a vitamin D level recorded. Only 4 out of 10 had undergone this test, and among them, 8 out of 10 had some degree of hypovitaminosis. These results are higher than those reported in the literature and may be related to the proportion of patients who had their vitamin D levels measured in our study population.¹⁷⁻¹⁹ Future research will help clarify the role of this vitamin in the pathogenesis, severity, associations, and treatment of vitiligo.¹⁶

The most frequently observed clinical form of vitiligo in our patients was generalized vitiligo (44%), which is consistent with previous reports.^{9,10,13,14} In our case series, this was followed in frequency by the acrofacial form (28%), focal vitiligo (18.7%), mucosal (3.68%), segmental (2.8%), and finally, universal vitiligo (2%). Available data on the frequency of these subtypes are limited, and it is difficult to make direct comparisons with other publications, as many studies lack this information or use different classification systems.

The diagnosis of vitiligo is clinical. Among the cases studied, more than 90% were evaluated by a dermatologist.

That appears to be higher than previously reported. In a study published by Hadi et al. involving 1,487 patients in New York, 61.2% had a confirmed diagnosis from a dermatologist, while the remaining patients had no documented consultations with the specialist.³

The treatment of this condition remains a challenge for dermatologists. On the one hand, it is essential to remember that it is not only a cosmetic issue but one that can have a significant emotional impact, affect social relationships, and therefore impair quality of life.^{1,2,8} There are currently safe treatment options whose effectiveness may vary depending on the affected area and the type of vitiligo. In our case series, we observed that 8 out of 10 patients received treatment. The most frequently prescribed therapies were topical corticosteroids, topical calcineurin inhibitors, and phototherapy. Calcipotriol, other anti-inflammatory /immunosuppressive agents (minocycline and methotrexate), and systemic corticosteroids were used less frequently. Depigmenting treatment was used in 1% of cases, and only one patient underwent surgical treatment. There is insufficient information available on this topic in the literature reviewed, except for a study by Ibáñez et al. in Argentina involving pediatric patients, in which the most commonly used treatments were similar.²⁰ New therapeutic options, such as topical and systemic JAK inhibitors, are being used with promising results. However, at the time this research was carried out, these drugs had not yet become available. Since these medications have not yet received approval for vitiligo in our country, their limited availability and access are clearly reflected in the study's results.

The most significant limitation of our research is that it was conducted in a population from a Community University Hospital, representing a middle-class demographic with a high percentage of elderly patients. Therefore, the results may not be generalizable to other populations with a higher proportion of younger adults or different socioeconomic contexts.

We believe that one of the most relevant strengths of our study is that patients' medical records were reviewed by physicians who are experts in vitiligo (dermatology specialists). In addition, the data were obtained from electronic medical records, which are a reliable and secure source.

CONCLUSIONS

In our study, the prevalence of vitiligo, its clinical characteristics, and associated comorbidities were similar to what has been reported in the literature. It is worth noting that 20% of patients did not receive any treatment, and 10% did not consult a dermatologist.

We emphasize the importance of having reliable statistical data on the epidemiology and associations of this condition in our population, in order to increase awareness of the disease and its impact. In the future, further basic and clinical research will be necessary to achieve a better understanding of its pathogenesis and to develop new treatment strategies.

Authors' Contributions: Conceptualization, Methodology, Investigation: SZ, ALLDN, LDM. Investigation: CD, SAB, MR, NB. Supervision: ACT. Formal analysis, Validation: ALLDN, SZ, LMD, ACT, LCM. Writing – original draft, Writing – review and editing: ALLDN, SZ, LMD, CD, MR, NB, SAB, ACT, LDM.

Conflicts of Interest: The authors declare no conflicts of interest.

Funding: The authors declare that this study received no external funding.

REFERENCES

- Bergqvist C, Ezzedine K. Vitiligo: a review. *Dermatology*. 2020;236(6):571-592. <https://doi.org/10.1159/000506103>.
- Alikhan A, Felsten LM, Daly M, et al. Vitiligo: a comprehensive overview. Part I. Introduction, epidemiology, quality of life, diagnosis, differential diagnosis, associations, histopathology, etiology, and work-up. *J Am Acad Dermatol*. 2011;65(3):473-491. <https://doi.org/10.1016/j.jaad.2010.11.061>.
- Hadi A, Wang JF, Uppal P, et al. Comorbid diseases of vitiligo: a 10-year cross-sectional retrospective study of an urban US population. *J Am Acad Dermatol*. 2020;82(3):628-633. <https://doi.org/10.1016/j.jaad.2019.07.036>.
- Chen J, Li S, Li C. Mechanisms of melanocyte death in vitiligo. *Med Res Rev*. 2021;41(2):1138-1166. <https://doi.org/10.1002/med.21754>.
- Ezzedine K, Lim HW, Suzuki T, et al. Revised classification/nomenclature of vitiligo and related issues: the Vitiligo Global Issues Consensus Conference. *Pigment Cell Melanoma Res*. 2012;25(3):E1-13. <https://doi.org/10.1111/j.1755-148X.2012.00997.x>.
- Mole M, Coringrato M. Actualización sobre vitiligo. *Dermatol Argent*. 2019;25(2): 50-57.
- Sociedad Argentina de Dermatología. Consenso sobre vitiligo: actualización 2015 [Internet]. Buenos Aires: la Sociedad; 2015 [citado 2025 ene 25]. Disponible en: <https://sad.org.ar/wp-content/uploads/2019/10/Consenso-vitiligo-2015.pdf>.
- Grimes PE, Miller MM. Vitiligo: patient stories, self-esteem, and the psychological burden of disease. *Int J Womens Dermatol*. 2018;4(1):32-37. <https://doi.org/10.1016/j.ijwd.2017.11.005>.
- Chaparro EN, Rosati OM, Hassan ML. Vitiligo nuestra casuística en 270 casos. *Arch Argent Dermatol*. 2011;61:191-196.
- Handa S, Kaur I. Vitiligo: clinical findings in 1436 patients. *J Dermatol*. 1999;26(10):653-657. <https://doi.org/10.1111/j.1346-8138.1999.tb02067.x>.
- Valverde J, Grados MA. Vitiligo: aspectos clínicos y epidemiológicos. *Folia Dermatol*. 2006;17 (1):21-24.
- Hann SK, Park YK, Whang KC, et al. Clinical study of 174 patients with generalized vitiligo. *Korean J Dermatol*. 1986;24(6):798-805.
- Salinas Santander M, Sánchez Domínguez C, Cantú Salinas C, et al. Vitiligo: factores desencadenantes asociados con su aparición en pacientes del noreste de México. *Dermatol Rev Mex*. 2014;58(3):232-238.
- Arita Zelaya AC, López Lutz E, Erazo Trimarchi G. Epidemiología del vitiligo y asociación con otras patologías. *Rev Méd Postgrados Med UNAH*. 2007;10(2):134-138.
- Frączek A, Owczarczyk-Saczonek A, Ludwig RJ, et al. Vitiligo is associated with an increased risk of cardiovascular diseases: a large-scale, propensity-matched, US-based retrospective study. *EBioMedicine*. 2024;109:105423. <https://doi.org/10.1016/j.ebiom.2024.105423>.
- Navarro Triviño FJ, Arias Santiago S, Gilaberte-Calzada Y. Vitamina D y piel: una revisión para dermatólogos. *Actas Dermosifiligr*. 2019;110(4):262-272. <https://doi.org/10.1016/j.ad.2018.08.006>.
- Castaño Villegas A, Moreno Zuluaga C, Medina Albis LJ, et al. Vitiligo y vitamina D. *Rev Asoc Colomb Dermatol*. 2019;27(1):36-51.
- Mahmmod Z, Ismael DK. Vitamin D deficiency in patients with vitiligo: a cross-sectional study from Basrah, Iraq. *Cureus*. 2021;13(12):e20733. <https://doi.org/10.7759/cureus.20733>.
- Varikasuvu SR, Aloori S, Varshney S, et al. Decreased circulatory levels of Vitamin D in Vitiligo: a meta-analysis. *An Bras Dermatol*. 2021;96(3):284-294. <https://doi.org/10.1016/j.abd.2020.10.002>. Errata en: *An Bras Dermatol*. 2021;96(6):802. <https://doi.org/10.1016/j.abd.2021.09.001>.
- Ibañez D, Moumdjian H, de la Sota R, et al. Vitiligo en un consultorio de dermatología pediátrica. *Autoinmunidad*. 2018;3(7):66-68.