Original Research

Prevalence of adult female acne in Colombia: A population-based study

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ABSTRACT

Background: Acne is a common inflammatory skin disease with adolescents being the most affected by this condition; however, acne also occurs frequently in the adult population. Adult acne is defined as late-onset acne or acne that persists beyond age 25 years. In terms of epidemiologic data, reports of adult female acne prevalence range from 5.5% to 61.5% around the world.

Objective: The aim of this study was to estimate the prevalence and trace the trend of adult female acne in Colombia over the last 5 years.

Methods: Using nationwide data from the General System of Social Security and Health in Colombia through the Sistema Integrado de Información de la Protección Social database and International Classification of Diseases, 10th Revision, diagnostic codes, a cross-sectional study was conducted to estimate the prevalence of adult female acne in outpatients in Colombia from 2015 to 2019.

Results: For the 5-year study period, overall acne prevalence was 2.14 per 1000 population. The highest annual prevalence (2.94 per 1000 population) was in 2019 and the lowest prevalence (1.71 per 1000 population) was in 2015. Prevalence peaked in patients age 25 to 29 years, and decreased to <1 per 1000 population in those age <50 years.

Conclusion: This nationwide study of adult female acne in Colombia suggests an increasing trend in prevalence over the last 5 years. We recommend further studies to determine risk factors involved in this condition.

Introduction

Acne is a common inflammatory skin disease with adolescents being the most affected by this condition; however, in recent decades, findings from research and clinical practice have found that acne frequently occurs in the adult population (Auffret et al., 2016; Collier et al., 2008). Adult acne is defined as late-onset acne or acne that persists beyond age 25 years (Collier et al., 2008; Dreno et al., 2013). Epidemiologic data have shown that its prevalence is higher among women than men, and some have called this condition adult female acne (Bagatin et al., 2019). Clinical features include inflammatory lesions, papules, and pustules with the presence of a few closed comedones or microcysts (Bagatin et al., 2019). The distribution is similar to that in adolescents in almost 90% of cases, involving multiple facial areas. Less than half of women present with lesions on the trunk (48.4%), and only 11.2%

have an exclusive distribution on the mandibular area (Dreno et al., 2015). Even though a scoring tool, the Adult Female Acne Scoring Tool, has been proposed for scoring acne in adult female patients to assess the severity of disease (Auffret et al., 2016), its etiology remains unclear and controversial. Genetic and hormonal factors and diet contribute to acne's physiopathology (Romanska-Gocka et al., 2016). Some associated risk factors have been elucidated, such as a history of acne in parents or siblings, a history of acne during adolescence, no previous pregnancies, hirsutism, and stress (Di Landro et al., 2016; Schmitt et al., 2009).

In terms of epidemiologic data, reports on adult female acne prevalence range from 5.5% to 61.5% worldwide (Semedo et al., 2016; Svensson et al., 2018). Adult female acne has a negative impact on quality of life, not always correlated to the severity of acne (Dreno et al., 2015; Rocha et al., 2018; Tanghenatti et al., 2014). This condition is mainly mild to moderate in severity, may be refractory to treatment, and requires maintenance therapy (Dreno et al., 2013).

The aim of this study was to assess the prevalence of adult female acne and trace its trend in Colombia over the last 5 years.

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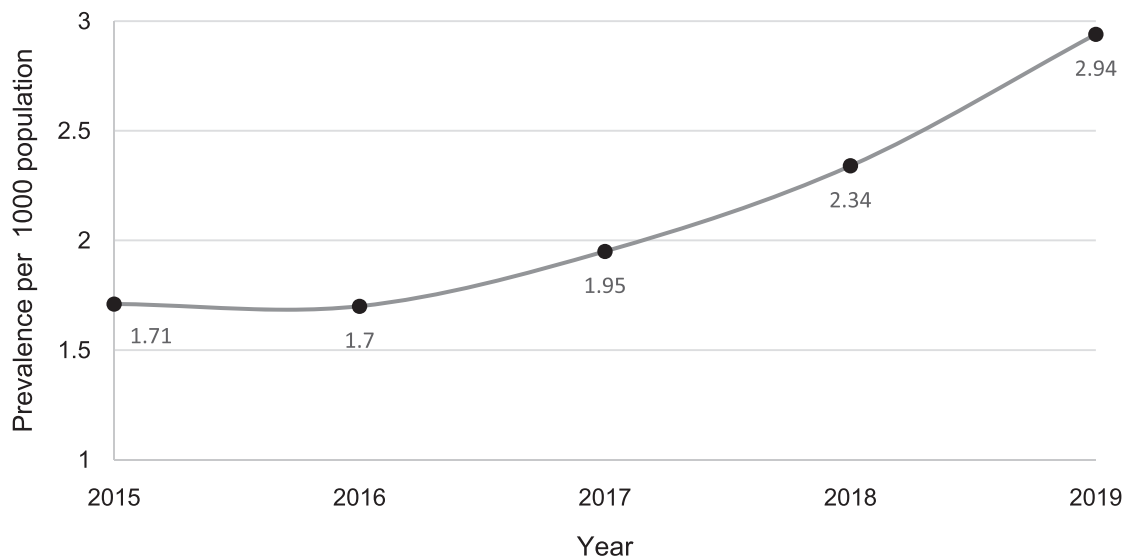*E-mail address:* ljrueda@unbosque.edu.co (L.J. Rueda).

Fig. 1. Adult female acne prevalence in the last five years.

Methods

We conducted a cross-sectional study using nationwide data from the General System of Social Security and Health in Colombia through the Sistema Integrado de Información de la Protección Social database. This database holds all health care information for inpatient and outpatient medical services for the insured Colombian population, which is estimated to be 95.76% (Colombian Department of Health, 2020).

The database was queried for acne using the International Classification of Diseases, 10th revision. The codes included were acne vulgaris (L70.0), acne conglobata (L70.1), acne varioliformis (L70.2), acne excorieé (L70.5), other acne (L70.8), and unspecified acne (L70.9). The cases were defined as women age ≥25 years who were diagnosed with acne by a dermatologist or general physician during an outpatient visit between 2015 and 2019. Each woman was counted as one case, but many patients had ≥2 medical events recorded. To estimate prevalence, the denominator was the Colombian female population age ≥25 years for each year of interest as reported by the National Administrative Department of Statistics, which is the entity responsible for the planning, surveying, processing, analyzing, and disseminating official Colombian statistics. To define the female Colombian population age ≥25 years, data were used from the General Census conducted in 2005 and its demographic projections (National Administrative Department of Statistics, 2020).

We calculated the annual prevalence from 2015 to 2019. The annual prevalence for adult female acne was calculated as the number of cases per 1000 population in a given year, divided by the total female population age ≥25 years during the year of interest. Overall prevalence was estimated as the total number of acne cases divided by the total female population age ≥25 years during the 5-year period. We estimated 95% confidence intervals. For all analyses, we used the Sistema Integrado de Información de la Protección Social database through the Microsoft SQL Server from Microsoft Excel, version 16.37. The Ministry of Health granted authorization for remote access to the data.

Results

During the 5-year period, 154,760 female patients in the Colombian population were diagnosed with acne. The overall prevalence of acne in the female population during the 5-year study period was 2.14 per 1000 population. The highest annual prevalence was in 2019 (2.94 per 1000 population) and the lowest was in 2015 (1.71 per 1000 population), showing an increasing trend of acne prevalence over the last 5 years (Fig. 1). The peak prevalence by age group was consistently observed in patients between ages 25 and 29 years for each year of the study period and decreased to <1 per 1000 population in those age <50 years.

The highest annual prevalence by age group was 8.54 per 1000 population in 2019, followed in descending order by 7.05 in the same age group in 2018 and 6.04 per 1000 population in the 30- to 34-year-old age group in 2019. All prevalence by age group <50 years showed an increasing trend for the last 5 years; for each age group, 2019 was the year with the highest prevalence (Table 1).

Discussion

Reports of adult female acne prevalence range from 5.5% to 63.2%, but these differences are partly explained by different methodologies. Most reports are findings from general population surveys, and others are from specific population surveys as samples from health care centers. Collier et al. (2008) estimated that the prevalence of acne in adults varied from 50.9% in patients age 20 to 29 years, to 15.3% in those age ≥50 years, showing a decreased prevalence with age.

In Portugal, acne prevalence was estimated at 63.2%; the peak prevalence by age group was 81.5% for those 20 to 29 years (Semedo et al., 2016). In France, the prevalence of adult female acne was estimated at 41% in women age 25 to 40 years (Poli et al., 2001). A second population-based, multicenter (United States, England, Italy, and Japan), cross-sectional study reported that 45% of women age 21 to 30 years, 26% age 31 to 40 years, and 12% age 41 to 50 years had clinical acne (Perkins et al., 2011). In other European countries, Svensson et al. (2018) followed a study of skin diseases in adults in Europe and reported that acne was the second most common disease with a higher prevalence in female patients. The authors of the study also reported an acne prevalence of 5.5% to 17.5% in the five countries where the study was conducted (Svensson et al., 2018).

In this study, we report on the nationwide population-based prevalence of adult female acne in Colombia. We estimated an overall prevalence of 2.14 cases per 1000 population. In addition, the annual prevalence from 2015 to 2019 was 1.71, 1.70, 1.95, 2.34, and 2.94 per 1000 population, respectively, showing an increasing

Table 1

Adult female acne prevalence per 1000 population in Colombian population by age group (2015–2019)

Age group, years	2015		2016		2017		2018		2019	
	n	Prevalence (95% confidence interval)	n	Prevalence (95% confidence interval)	n	Prevalence (95% confidence interval)	n	Prevalence (95% confidence interval)	n	Prevalence (95% confidence interval)
25–29	9303	4.77 (4.67–4.86)	9360	4.73 (4.64–4.83)	11465	5.72 (5.62–5.83)	14291	7.05 (6.93–7.16)	17511	8.54 (8.42–8.67)
30–34	6600	3.66 (3.57–3.75)	6648	3.64 (3.55–3.72)	7630	4.12 (4.70–4.89)	8996	4.80 (4.70–4.89)	11485	6.04 (5.93–6.15)
35–39	3742	2.27 (2.20–2.34)	3844	2.29 (2.22–2.36)	4385	2.57 (2.50–2.65)	5550	3.21 (3.12–3.29)	7094	4.04 (3.95–4.14)
40–44	1818	1.22 (1.16–1.27)	1911	1.27 (1.21–1.32)	2164	1.41 (1.35–1.47)	2692	1.72 (1.66–1.79)	3652	2.29 (2.21–2.36)
45–49	945	0.63 (0.59–0.67)	1002	0.67 (0.63–0.71)	1131	0.76 (0.71–0.80)	1340	0.91 (0.86–0.95)	1781	1.21 (1.15–1.27)
50–54	508	0.36 (0.33–0.39)	539	0.38 (0.34–0.41)	593	0.41 (0.37–0.44)	693	0.47 (0.44–0.51)	1020	0.69 (0.65–0.73)
55–59	304	0.26 (0.23–0.29)	306	0.25 (0.22–0.28)	335	0.27 (0.24–0.29)	375	0.29 (0.26–0.32)	641	0.48 (0.44–0.51)
60–64	203	0.22 (0.19–0.25)	199	0.21 (0.18–0.24)	199	0.20 (0.17–0.23)	229	0.22 (0.19–0.25)	362	0.33 (0.30–0.37)
65–69	123	0.18 (0.14–0.21)	136	0.19 (0.15–0.22)	132	0.17 (0.14–0.20)	142	0.18 (0.15–0.21)	249	0.30 (0.26–0.34)
70–74	62	0.12 (0.09–0.15)	75	0.14 (0.11–0.17)	88	0.16 (0.13–0.19)	96	0.17 (0.13–0.20)	147	0.24 (0.20–0.28)
75–79	51	0.13 (0.10–0.17)	52	0.13 (0.10–0.17)	58	0.14 (0.11–0.18)	41	0.10 (0.07–0.13)	116	0.28 (0.23–0.33)
≥80	71	0.18 (0.13–0.22)	44	0.10 (0.07–0.14)	51	0.12 (0.09–0.15)	72	0.16 (0.12–0.20)	108	0.23 (0.19–0.28)

trend of acne prevalence over the last 5 years. Peak prevalence by age group was consistently observed in patients between age 25 and 29 years for each year of the study period. We reported a prevalence from 2015 to 2019 in the younger age group of 4.77, 4.73, 5.72, 7.05, and 8.54 per 1000 population, respectively. The highest annual prevalence by age group was 8.54 per 1000 population in 2019, followed in descending order by 7.05 in the same age group in 2018 and 6.04 per 1000 population in the 30- to 34-year-old age group in 2019.

After age 50 years, acne continues appearing, and the number of acne cases in women between age 50 and 60 years has shown an increasing trend in the last 5 years. The prevalence of acne in women in this age range doubled during the period study; this is different from women age >60 years, among whom the number of cases slightly fluctuates and there is no increasing trend. In summary, for all women between age 25 and 60 years, acne has become a frequent reason for consultation that can affect their quality of life. We consider this increasing trend in prevalence to be due to increased exposure to risk factors that have been described previously in the literature (e.g., massive exposure to hormonal contraceptives that contain first- and second-generation progestins, in combination with estrogens or as monotherapy). These kinds of oral and deposit contraceptives are covered by health insurance in Colombia. Other risk factors, such as exposure to a high glycemic index diet, can also influence this increasing trend of adult female acne. This is also related to the high rates of overweight and obesity in our population. Stress has also been reported as a risk factor and partly explains the high prevalence of adult acne due to women's stressful lifestyle in our times.

In summary, although the highest prevalence in this study was for women between age 25 and 29 years, we highlight the high prevalence of acne in adult women between age 25 and 50 years and its increasing trend. This raises the need to control the risk factors already explained. In addition to the need to widely disseminate what is known about this condition and include diagnostic tools in our clinical practice, classification of severity and treatment algorithms will offer women appropriate and opportune management. Finally, these findings motivate us to continue researching etiology and innovative therapeutic options for this condition.

Limitations of our study include information bias resulting from the significant number of women who, although they have this condition, do not seek treatment. Thus, adult female acne cases may be underreported and underestimated.

Conclusion

This nationwide study of adult female acne in Colombia identified an increasing trend of prevalence over the last 5 years for all women age <60 years. We recommend that further studies be conducted to define risk factors for and the disease burden of adult female acne.

Conflicts of interest

None.

Funding

None.

Study approval

The author(s) confirm that any aspect of the work covered in this manuscript that has involved human patients has been conducted with the ethical approval of all relevant bodies.

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