
The prevalence of acne in adults 20 years and older

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Background: Acne, one of the most common skin diseases, is often mistakenly thought to affect exclusively the teenaged group. However, a significant number of patients either continue to experience acne or develop new-onset acne after the teenaged years.

Objective: A survey was designed to assess the prevalence of acne in the teenaged years, and aged 20 to 29 years, 30 to 39 years, 40 to 49 years, and 50 years and older.

Methods: Adults aged 20 years and older were asked to complete surveys distributed at various sites on our university campus and medical complex.

Results: Of 1013 participants aged 20 years and older, 73.3% (n = 744) reported ever having acne. After the teenaged years, women were more likely to report having acne than men, with the difference being statistically significant in all age groups. The prevalence of acne reported in women versus men was as follows: 20 to 29 years, 50.9% (n = 276) versus 42.5% (n = 201) ($P = .0073$); 30 to 39 years, 35.2% (n = 152) versus 20.1% (n = 73) ($P < .0001$); 40 to 49 years, 26.3% (n = 93) versus 12.0% (n = 36) ($P < .0001$); and 50 years and older, 15.3% (n = 41) versus 7.3% (n = 18) ($P = .0046$).

Limitations: Our results are based on the participant's own perception of the presence or absence of acne rather than a clinical evaluation.

Conclusions: Acne continues to be a common skin problem past the teenaged years, with women being affected at higher rates than men in all age groups 20 years or older. (J Am Acad Dermatol 2008;58:56-9.)

Acne vulgaris is a common skin disease, affecting more than 85% of adolescents and often continuing into adulthood.¹ Current research indicates that the pathogenesis of acne involves 4 main processes: follicular hyperproliferation, excess sebum production, inflammation, and proliferation of *Propionibacterium* acnes. Clinically, acne is graded according to the types of lesions present: open and closed comedones, inflammatory papules, pustules, cysts, nodules, and even scarring

may be seen in various forms of acne. The degree to which both active acne and scars from previous acne may cause psychologic or emotional harm varies from patient to patient and may or may not correlate with clinical severity. Evidence suggests that the impact of acne on a patient's psychologic and emotional well-being is comparable with that of systemic disease processes such as diabetes, asthma, arthritis, and epilepsy.²

Without treatment, acne is generally expected to spontaneously regress during the late teenaged or early adulthood years. However, a significant number of patients experience persistent acne or develop new-onset adult acne after adolescence. The mean age for presentation for acne treatment is 24 years, and 10% of visits are by patients between the ages of 35 and 44 years.³ The importance of providing treatment for these adults is heightened by the awareness that acne that persists for longer periods is more likely to lead to scarring.⁴

The majority of epidemiologic studies of acne have focused on adolescents. Those who have studied adult acne have often centered on recognizing and treating patients with hormonal imbalances (Table I). In 1979, Cunliffe and Gould⁵ surveyed and

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Table I. Landmark studies of the prevalence of adult acne

Author	No. of subjects	Age, y	Sex	Study type	Prevalence
Cunliffe et al ⁵	2155	18-70	Male and female	Survey + clinical examination	Age 40-49 y: 3% of men and 5% of women have clinical acne Age 50-59 y: 6% of men and 8% of women have physiologic acne; higher prevalence in male participants younger than 18 years, higher in female participants older than 23 years
Stern ⁶	20,749	15-44	Male and female	Survey	Active acne in 27% of women and 34% of men
Poli et al ⁷	3305	25-40	Female only	Survey	41% of women
Goulden et al ⁸	749	25-58	Male and female	Clinical examination	Clinical acne in 12% of women and 3% of men, clinical or physiologic acne in 54% of women and 40% of men

examined greater than 2000 men and women and reported a higher prevalence of acne among male patients before the age of 16 years, but a higher prevalence among female patients after the age of 23 years. Based on observation of the severity of the acne, participants were placed into one of 4 categories: grade 0 or no acne, grade 1 or physiologic acne (<5 noninflamed and inflamed lesions), grade 2 (5-10 lesions), and grades 3 to 10 or clinical acne (requiring treatment). They reported that between the ages of 40 and 49 years, 3% of men and 5% of women experienced clinical acne. Physiologic acne was found in 6% of men and 8% of women between the ages of 50 to 59 years. More recent studies have begun to establish an increase in the prevalence of adult acne. Stern⁶ reported the results of a survey of 20,749 residents of North America aged 15 to 44 years, which revealed active acne in 27% of women and 34% of men. Poli et al⁷ conducted a survey of 3305 women in France aged 25 to 40 years and reported a prevalence of 41%, with a high proportion of cases being late-onset acne. Goulden et al⁸ studied a community-based population of more than 700 adults older than 25 years and reported clinical facial acne in 12% of women and 3% of men. When both clinical and physiologic (milder) acne were included, the prevalence increased to 54% in women and 40% in men.

Our primary objective was to assess the prevalence of acne in adult men and women in the age group of 20 years or older. Secondary objectives included the assessment of the prevalence of a premenstrual acne flare in premenopausal women and the effect of treatment for menopausal symptoms (especially hormone replacement therapy) on acne in menopausal women.

METHODS

A 1-page questionnaire was designed to evaluate the prevalence of acne in various adult age groups. The survey was developed in conjunction with our biostatistics department. The survey design included a test of internal consistency to exclude participants who failed to answer the survey truthfully. The survey was piloted and validated by administering the survey to patients presenting to our dermatology clinic during a 1-month period. The institutional review board reviewed and approved the survey protocol on March 20, 2006 (protocol number X060206010). Survey questions included whether the participant had ever had acne or pimples; had acne or pimples during the teenaged years; and had acne or pimples in their 20s, 30s, 40s, and 50s or older. Another survey item asked participants to judge whether their acne had become better, worse, or stayed the same since their teenaged years. A separate section was designed to be answered only by female participants and included questions assessing aspects of acne specific to women. These included changes in acne around the time of the menstrual period, the woman's premenopausal or postmenopausal status, and the affect of any treatments for symptoms of menopause on acne.

Women and men aged 20 years or older were asked to participate by completing the questionnaire. They were randomly selected in various waiting areas of our university clinic including internal medicine, orthopedic surgery, rheumatology, hematology and oncology, obstetrics/gynecology, infusion therapy, laboratory, and radiology, and at a campus library. Individuals selected included both patients and the family members or friends accompanying the patient.

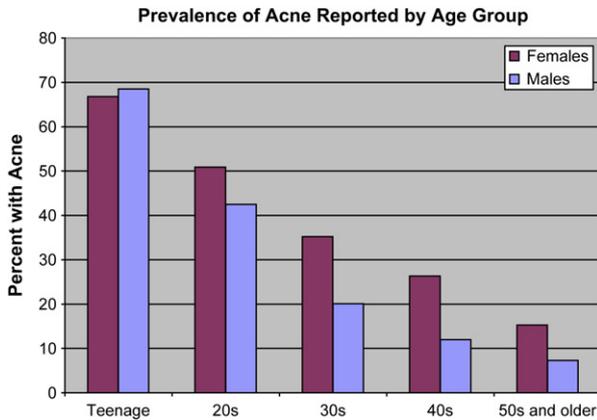


Fig 1. Prevalence of acne reported by age groups. *P* values represent difference between male and female participants in each age group.

Two-sided *t* test was applied to compare age between male and female participants. Two-sided chi-square test was used to compare proportions of having acne between male and female participants. The significance level for all tests is .05. All statistical analyses were done with software (SAS 9.1, SAS Institute, Cary, NC).

RESULTS

A total of 1148 surveys were distributed and completed. Of these, 35 were excluded on the basis of self-contradictory answers causing the participant to fail the test of internal consistency, and 1013 were included in the data analysis. The mean age of participants was 48.0 years (SD 16.7). There were 540 female and 473 male participants included in the study. When asked whether they had ever had a pimple or acne, 73.3% of participants responded affirmatively. Concerning teenaged acne, the number of men and women reporting acne was not significantly different, with 68.5% of male participants and 66.8% of female participants reporting experiencing acne ($P = .5617$) (Fig 1). After the teenaged group, acne reporting was significantly higher among women than men for all age groups. Acne in their 20s was reported by 42.5% of men and 50.9% of women ($P = .0073$). The percentage of participants experiencing acne in their 30s was 20.1% for men and 35.2% for women ($P < .0001$). In all, 12% of men and 26.3% of women experienced acne during their 40s ($P < .0001$). Finally, 7.3% of men and 15.3% of women reported acne at age 50 years or older ($P = .0046$).

When asked about the severity of acne during teenaged years compared with later years, 63.0% of men and 53.3% of women stated that their acne improved after teenaged years. Worsening of acne

after teenaged years was noted by 3.6% of men and 13.3% of women. Reporting that their acne was the same now as during their teenaged years were 3.8% of men and 9.8% of women. Finally, 23.6% of women and 29.6% of men reported never having acne.

Interestingly, study participants who were younger than 40 years at the time of the survey were more likely to report ever having acne, with 86.6% of men and 89.1% of women reporting any history of acne. In the age group 40 years or older, only 61.3% of men and 68.5% of women reported ever having acne. It is possible that those older than 40 years have a diminished recall of the presence of acne during their younger years compared with those younger than 40 years. It is also possible that the awareness of acne is greater among the younger population because of greater commercial publicity concerning acne and its treatment.

The second portion of the survey contained questions pertinent only to women. Of premenopausal women ($n = 225$), 62.2% noted that their acne gets worse around the time of menstruation. Of 86 women who reported using either hormone replacement therapy or over-the-counter medications for the side effects of menopause, 9 women (10.5%) reported improvement in their acne with the use of such therapy. In all, 75 of the women (87.2%) reported no change, and two women (2.3%) reported worsening of their acne symptoms.

DISCUSSION

Our results confirm the findings of several previous studies that acne remains a common disease throughout the adult years. In contrast to the abundance of studies related to acne in adolescents, there are relatively few studies in the literature that address adult acne. Our study is important in that it assesses acne in both sexes according to age group. Although the data are drawn from a survey and, thus, represent self-report of acne rather than a clinical assessment, acne is a well-known skin condition within the general public. A possible benefit of self-report format is the ability to capture the presence of acne in a patient whose acne is intermittent, whereas a clinical assessment judges the presence or absence of acne only at the time of the assessment. In the future, it would be interesting to perform a study that combined a clinical assessment with a subjective questionnaire.

Recognition of the prevalence of acne among the adult population has led to closer study of the characteristics that might differentiate adolescent from postadolescent acne. A review of the clinical features of postadolescent acne conducted by Goulden et al⁸ identified two main clinical groups: those with

persistent acne and those with late-onset acne. They suggested that those with late-onset acne and women with features of hyperandrogenicity could represent a subgroup that requires further investigation for hormonal abnormalities. The study also reported that postadolescent acne is generally mild or moderate and has a female predominance.

Our study indicates that after the teenaged years, women are more often affected by acne than men. The overall prevalence of acne does decline with age in both sexes, but it is clear that a significant number of individuals experience either a worsening of acne symptoms or fail to experience improvement after the teenaged years. The results of the questions that asked the participants about the severity of their acne over time are consistent with the idea of two separate groups of adult patients with acne: persistent and late onset.

Research continues to yield more information concerning the pathogenesis of acne, and more specifically the role of hormones in the development of acne. Questions remain regarding why more adult women continue to experience acne than adult men. What is the pathophysiology of the well-documented premenstrual flare? What role does menopause play?

What are the main causal factors of adult-onset acne in men and women? Discovering the answers to these important questions will allow us to greatly impact the quality of life for our adult patients with acne.

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