

ACNE VULGARIS IN ADOLESCENCE*

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Acne vulgaris is one of the leading problems of adolescence which was previously thought to be a physiologically caused event terminating at 21 years of age. But assuming that this condition can last up until 30-40 years of age and leaves cicatrix on the dermis, the importance of this disease is understood and the need for therapy becomes inevitable. The survey summarized herein was devised to obtain epidemiological information about acne from a large general population of adolescents. The information was obtained by the use of a questionnaire and did not involve direct interviewing, but to ensure adequate participation for data analysis, a large population sample was used.

Material and Methods

3280 questionnaires were distributed approximately equally to boys and girls in the 6th-12th grades of two high schools in the Güilveren district of Ankara. The students presenting with acne were asked to fill out the questionnaires.

Results

Of the 3280 students, whose ages ranged between 12-18 years, 304 had acne (9.3%). This comprised 4.9% of the boys and 4.4% of the girls. The distribution of the study group by age and sex, and the data for each subject ranging in age from 12 to 18 years are presented in Tables I and II.

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TABLE I: Survey Population

Age (yrs)	Number of boys	Number of girls	Total number of students
12	249	100	349
13	244	102	346
14	248	194	442
15	275	356	631
16	191	450	641
17	170	337	507
18	146	218	364
Total	1523	1757	3280

TABLE II: Prevalence of Acne

	Age (yrs)	Total number of students	Number of students with acne	Students with acne (%)
Boys				
	12	249	17	6.8
	13	244	11	4.5
	14	248	28	11.3
	15	275	34	12.4
	16	191	41	21.5
	17	170	16	9.4
	18	146	14	9.6
Girls				
	12	100	22	22
	13	102	22	21.6
	14	194	21	10.8
	15	356	25	7.0
	16	450	29	6.4
	17	337	18	5.3
	18	218	6	2.8

In 89.1% of the 304 patients, the acne was localised on the face. The distribution of acne is summarized in Table III.

TABLE III: Distribution of Acne

Localization	Girls	Boys
Face	128 (89.5%)	143 (88.8%)
Back	7 (4.9%)	10 (6.2%)
Face and back	8 (5.6%)	8 (5.0%)
Total	143	161

One hundred and eighty-five participants (60.9%) in this study revealed that there were no seasonal changes in the severity of their acne while 119 (39.1%) reported the contrary (Table IV).

TABLE IV: Seasonal Changes Occurring in the Acne of Students during at Least One Season

	Number of Students							
	Winter	%	Spring	%	Summer	%	Fall	%
Boys : Improvement	5	16.7	5	11.1	29	74.4	5	14.3
No change	20	66.6	40	88.9	10	25.6	30	85.7
Worse	5	16.7	—	—	—	—	—	—
Girls : Improvement	5	13.5	10	22.2	25	65.8	15	42.9
No change	27	73	30	66.7	8	21.1	20	57.1
Worse	5	13.5	5	11.1	5	13.1	—	—
Total : Improvement	10	14.9	15	16.7	54	70.1	20	28.6
No change	47	70.2	70	77.6	18	23.4	50	71.4
Worse	10	14.9	5	5.7	5	6.5	—	—

One hundred and ninety-one (62.8%) of the acne patients revealed that there were other family members who had acne. Ninety-one girls (47.6%) and 100 boys (52.4%) declared that at least one member of their family, other than themselves, suffered from acne.

Forty-five (14.8%) of the 304 patients said that they were nervous, could not sleep easily at night and did not have good relations with the other members of their family. Most of the subjects revealed that they did not indulge in any particular

foods, while 30 of them (9.9%), 17 girls (56.7%) and 13 boys (43.3%) said that they had the tendency to eat oily and spicy foods. Table V shows the type of skin characteristic of the students suffering from acne.

TABLE V: Type of Skin in Acne Patients

	Oily		Normal		Dry		Total	
Boys	62	(20.4%)	66	(21.7%)	10	(3.3%)	138	(45.4%)
Girls	80	(26.3%)	70	(23.1%)	16	(5.2%)	166	(54.6%)
Total	142	(46.7%)	136	(44.8%)	26	(8.5%)	304	(100.0%)

It was ascertained from the questionnaires that 273 of the 304 students (89.8%) had cleansed their faces with soap and water at least once a day and bathed at least once a week. Thirty-three of the 304 students (10.9%) sought medical treatment for their acne and used topical agents while 271 of them (89.1%) did not consult a doctor.

Discussion

Acne vulgaris is a self-limiting disease, seen primarily in the adolescent age-range, involving the sebaceous follicles¹. There are reports indicating that the incidence of acne varies from 2.5 to 90 percent during adolescence¹⁻³. We found it to be 9.3% in 3280 students. Studies indicate that there is a slightly higher prevalence of this condition in males. In our study group, of the total 304 subjects presenting with acne, 4.9% were boys and 4.4% were girls^{4,5}.

The disease may be an early manifestation of the pubertal spectrum, and in girls, it may precede menarche by more than a year^{1,2}. The greatest number of cases is seen during the middle-to-late teen-age period. In our study group, the prevalence of acne in the 12-13 year-old age-group was 43.6% in girls which correlates with the literature. However, in the boys we found that with an increase in age, the prevalence of the disease began to increase and in the 16-year-old age-group, we noticed that 21.5% of the students had acne.

In both groups (boys and girls), the primary site of acne was the face, 88.8% in boys and 89.5% in girls. It is well-known from the studies carried out in Turkey and abroad that the primary site of acne is the face and to a lesser degree the back, chest and shoulders. In 304 of our students only 15 (5.6%) had acne on the back, in addition to the face.

119 students (39.1%) reported that their acne was affected by seasonal changes. Analysis showed that the acne definitely improved during the summer, supporting the theory that acne is inclined to improve during the summer season ($p < 0.05$)^{3,6,7}.

Acne tends to be familial, but owing to the high prevalence of the disease this would be extremely difficult to assess^{1,7}. Of the 191 subjects studied, 304 (62.8%) declared that there was at least one other member in the family with acne, and the number of girls and boys having a relative with acne was approximately the same (91 vs.100). While the basic cause of acne is unknown, considerable information on the various factors concerned in its pathogenesis has been accumulated in recent years. Emotional stress may aggravate acne. While no definite evidence exists to show that such stress increases sebaceous gland activity, the pituitary adrenal axis may be involved, since it has been shown that patients with acne have a greater increase in urinary glucocorticoid levels after corticotropin administration than that seen in normal persons^{1,8,9}. Diet alone is not solely responsible in the etiology or therapy of acne. Although it is believed that the foods consumed could play a role in the formation of acne, several studies performed to date do not fully define the effect of food on acne^{3,10,11}. In our study group, only 14.8% of the acne patients gave positive answers to the questions about emotional stress and 90.1% revealed that they did not indulge in any particular foods. In other words, we found no relationship between emotional stress, dietary habits and acne.

As a group, patients with acne produce a higher rate of sebum, and those patients with severe acne secrete more sebum than those with a mild form of the disease^{1-3,8}.

Nevertheless, there is considerable variation in sebum production within the group of patients with acne, indicating that the disease is not related solely to sebaceous gland activity. In a study performed in Turkey, it was found that there was statistical importance between the prevalence of acne in oily and dry skin⁷. In our study group, we found that in the students with acne, 46.7% had oily skin, 44.8% had normal skin and 8.5% had dry skin. There was no statistical difference between oily and normal skin but the difference between oily and dry skin was significant ($p < 0.05$).

Cleansing with soap and water results in the removal of fat or bacteria or both from within the follicles. Many acne patients have pronounced seborrhea. Washing or cleansing to remove this excess oil is frequently of subjective benefit. Tunalı et al⁷ found statistical importance between the acne patients washing once a day and those two or three times a day. In our study group, most of the patients (89.8%) revealed that they washed at least once a day. Although acne vulgaris is a

self-limiting disease and has often been termed a physiologic event, emphasis should be given to its therapy because of the fear of cicatrix formation that could remain in later years. In our study group, it was found that only 10.9% had sought medical attention for their problem.

Since adolescence is a period full of conflicts, the problem of acne should always try to be solved, even though there might be resistance on the part of the adolescent, and the therapy should be suggested.

Summary

Questionnaires on acne were filled out by 3280 students in the Gülveren district of Ankara. The prevalence of acne in this group was 9.3%. The data from the group of 304 students with acne were analyzed with respect to prevalence, distribution, seasonal change, family history, food habits and type of skin. Of the students with acne, only 10.9% had sought medical attention. It is suggested that the adolescent with acne is not likely to consult a doctor.

REFERENCES

1. Strauss JS. Sebaceous glands. In Fitzpatrick TB, Eisen AZ, Wolff K (eds). *Dermatology in General Medicine* (2nd ed). New York: McGraw Hill, 1979 pp 437-451.
2. Büyükgebiz A, Kınık E. Acne vulgaris. *Katkı* 7:5, 1986.
3. Tüzün Y, Kotoğyan A, Saylan T: *Dermatoloji*. İstanbul: Anka Ofset, 1985, pp 504-523.
4. Burton JL, Cunliffe JW, Stafford I, et al. The prevalence of acne vulgaris in adolescence. *Br J Dermatol* 85:119, 1971.
5. Cunliffe JW, Gould DJ. Prevalance of facial acne vulgaris in late adolescence and in adults. *Br Med J [Clin Res]* 28:1109, 1979.
6. Emerson GW, Strauss JS: Acne and acne care. A trend survey. *Arch Dermatol* 105:407, 1972.
7. Tunalı Ş, Tokgöz N, Özcan A. et al. 12-18 yaş gruplarında akne vulgaris prevalansı. Bingül Ö, Palalı Z, Tunalı Ş (eds): VIII Ulusal Dermatoloji Kongresi Eylül 1980. Bursa: Uludağ Üniversitesi Basımevi, 1982, 673-687.
8. Tunnessen WW Jr. Acne: an approach to therapy for the pediatrician. *Adv Pediatr* 31:325, 1984.
9. Tolman EL. Acne and acneiform dermatoses. In Moschella SL, Hurley H. (eds). *Dermatology* (2nd ed). Philadelphia: WB Saunders Co, 1985, pp. 1306-1322.
10. Cotterill JA. Acne. *Practitioner* 226:1227, 1982.
11. Kaufman WH: The diet and acne [letter]. *Arch Dermatol* 119:276, 1983.