

**DESCRIPTIVE TRANSVERSAL RANDOMISED EPIDEMIOLOGICAL  
STUDY ON THE PREVALENCE OF ACNE IN SPAIN:  
PSYCHOLOGICAL REPERCUSSION IN THE ADOLESCENT AND  
PERCEPTION OF THE DERMATOLOGISTS**

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**ABSTRACT**

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**BACKGROUND:** Up to date there are no figures on the prevalence of acne in Spain, nor data about big groups of patients with acne which help to determine its importance and its psychological repercussion. There are no data about the perception of the dermatologists about acne, either.

**OBJECTIVES:**

- To determine the prevalence of acne in the Spanish adolescent population
- Assess the psychological impact of acne on the affected patients
- Know the attitude, behaviour and satisfaction related to the acne treatment, from the dermatologist point of view.

**METHODS:**

3213 questionnaires filled in by adolescents, aged between 12 and 18 years, from different schools in Spain, selected at random, have been collected. 406 dermatologists, working in this field for an average period of 9.1 years, have also voluntarily and randomly participated. External companies have tabulated the data.

**RESULTS AND CONCLUSIONS:**

The prevalence of acne in the Spanish adolescents, aged between 12 and 18 years is of 73.59% being no differences between sexes, and with a peak of maximum prevalence between the age of 14 and 16 years. 64.38% of this population is receiving treatment, which is proposed by the dermatologists in 22.78% of the cases. In 5.10% of the patients the acne is very severe, being moderate to severe in 27.51% of the cases. 49% of the adolescents are suffering

from anxiety, depression or difficulties to establish relationships with the opposite sex, being the females more vulnerable to the psychological impact of the illness than males and all this regardless the severity of the lesions.

Regarding the surveys carried out with dermatologists, mention should be made to the number of individuals, older than 25 years of age , suffering from acne, who come to dermatological consultation (28.7%), as well as to the importance given by the dermatologists not only to the efficacy but also to the satisfaction that a pharmacological treatment produces in patients. The dermatologist considers the environment, the information and the psychological support vital in the acne management.

The knowledge of these facts leads to changes in the therapeutic, preventive and research strategies surrounding the acne, which are necessary to improve the expectations of the illness.

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## INTRODUCTION

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It is known that the acne is one of the most frequent illnesses which affect the human beings, with a prevalence that reaches a high percentage of the population during a very important period of their lives <sup>(1)</sup>. Similarly, the repercussion of the acne in the phsyquis and the quality of life is also well known <sup>(2,3)</sup>. Nevertheless, up until now there are neither figures which determine the prevalence of the acne in Spain, nor data on big groups of patients with acne which would allow to assess the importance and the kind of psychological repercussion.

On the other hand, it is important to know the way the illness is perceived by the dermatologist in his/ her daily practice, what is his/her perception about the patient, as well as the satisfaction which can derive from a treatment based on its efficacy and comfort, data which has not been collected up to date in the scientific literature.

For all these reasons we have decided to carry out a vast research with the following objectives:

1) On the general population:

a) Determine the prevalence of acne on the adolescent Spanish population and simultaneously obtain data on the sex, age, and severity of the clinical profile, duration of the illness, treatment and recommender.

b) Study the impact produced by the illness on those patients affected and in which psychological or social areas it appears.

2) On the dermatologists:

a) Know the attitude, behaviour and satisfaction related to the acne treatment from the experience and viewpoint of the specialist.

b) Simultaneously obtain data on the number of patients who come to consultation on a daily basis; type of previous treatments; treatments prescribed by the dermatologist and his assessment; level of self-medication; importance, according to the dermatologist, of the stress on the acne and of the acne on the psychism, as well as of the importance of the information and psychological support on the evolution and therapeutic fulfilment.

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## MATERIALS AND METHODS

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The research on the adolescents has been carried out through quantitative methodologies, using questionnaires which have been fulfilled by young students aged between 12 and 18 years, coming from different schools in Spain, chosen at random (in Almería, Barcelona, Ciudad Real, La Coruña, Huesca, Jaén, La Rioja, Madrid, Málaga, Asturias, Valencia and Vizcaya).

The descriptive transversal randomised epidemiological study was carried out during May and June 2001. Prior to that, from September to December 2000, a divulgation campaign on acne was addressed to schoolchildren of that age in different schools by means of conferences and explicative leaflets, in order to facilitate a complete understanding of the questions asked.

A total of 3213 questionnaires were collected. This means to assume a sampling error of  $\pm 1.73\%$  for the overall data, with a CI of 95% for the worst case ( $p=q=50\%$ ). The sample distribution by sex was 49.94% for females and 50.06% for males, where the maximum number of answers has been found in adolescents of 15 years of age.

The research on dermatologists has also been carried out through quantitative methodologies, using questionnaires to be fulfilled by dermatologists who had been in that field from 1 to 45 years, and with an average of professional exercise of 9.1 years who have voluntarily and randomly participated during the months of May and June 2002.

A total of 406 questionnaires were received, which means a confidence interval of  $\pm 95.5\%$  and a margin of error of 4.96%.

The sample distribution by sex was 46% of females and 53% of males, being the minimum age 25 years and the maximum 70 years, and the average age 42.6

years, with a geographical national distribution which reached all the different Spanish Autonomous Communities.

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## RESULTS

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An external company, called FdC- Investigación de Mercados, tabulated the questionnaires fulfilled by the adolescents and the results were the following:

### 1. Prevalence

To the question “Are you suffering or did you suffer from acne at any time? The answers were: Yes 73.59% and No 26.41%. Of the affirmative answers 73.93% corresponded to males and 73.49% to females. Of the negative answers 26.07% corresponded to males and 26.51% to females, being no statistically significant differences related to the sex of the people interviewed.

The relation between affirmative answers and age was the following: 12 years old 5.73%, 13 years old 15.33%, 14 years old 22.70% 15 years old 27.63%, 16 years old 20.88% and 17 years old 7.73%.

### 2. Intensity

To the question on the severity of acne from the point of view of the interviewed individual, 26.86% considered it as very mild, 40.53% as mild, 27.51% as moderate and 5.10% as severe. Regarding the intensity according to sex, 67.36% of females and 67.71% of males regarded it as very mild or mild, 32.64% of females and 32.29% of males considered it as moderate or severe. There were no statistically significant

differences related to the sex.

### 3. Duration

Regarding the question about the duration of acne, 61.23% of the interviewed people answered that they were suffering or had suffered from acne during a period of between 12 and 35 months; during less than 12 months 21.83% and during more than 35 months 16.94%.

### 4. Treatment

Of the interviewed people with acne, 63.84% had followed a topical treatment: 53.43% were females and 75.45% males, being the difference statistically significant. Of those people who had followed a topical treatment 57.51% had mild to very mild acne and 78.62% had moderate to severe acne. Similarly, 21.6% of those who do not recognise to suffer or had suffered from acne also followed a topical anti acne treatment at any time. The main recommendation source for topical treatment comes from the parents, followed by the dermatologists, the pharmacist and others, being the percentages the following: dermatologist 22.78%, pharmacist 22.02%, friends 9.71%, parents 35.09%, “nobody” but “myself” 14.34%, brothers or sisters, relatives 3.93%, paediatrician 0.95%, other 0.44%, general practitioner 4.00%, aesthetician 0.44%, herbalists’ or perfumery shops seller 0.38%. 18.46% of the interviewed have visited the dermatologist for their acne. Of those 13.01% presented mild to very mild acne, 29.95% moderate and severe acne. Of the individuals visiting the dermatologist, 53.18% were females and 46.82% were males, being no statistically significant differences related to sex.

Systemic treatment has been followed by 5.54% of the interviewed. Of them, 54.76% were females and 45.24% were males, being the difference no statistically significant. Of those people who received systemic treatment 2.39% had mild or very mild acne and 12.30% moderate or severe.

### **5. Psychological repercussion**

73.03% of the young people interviewed are worried about having acne. 31.47% of the females are quite worried or very worried about having acne, as compared to 16.94% of males, being the difference statistically significant. 38.27% of young people with severe or moderate acne have refused to go out because of their suffering. In 20.7% of the cases acne has affected their studies, in 48.7% of the cases it has interfered in their relationships with individuals of the opposite sex. 30% of them have had problems with their fellow students.

A company called Scientific Communication Management (S.C.M.) has tabulated the data gathered from the questionnaires fulfilled by the dermatologists and the results obtained are the following:

#### **1. Number and age of the patients**

To the question on “how many patients with acne do you treat daily?” an average answer of 6.5 was obtained, with the following age percentages: people younger than 15 years old: 13.5%, from 15 to 20 years old 35.9%, from 21 to 25 years old 22.0% and older than 25 years old 28.7%.

#### **2. Access**

Regarding the question on the via by which the patients reached the consultation,



the following were the data obtained: general practice: 48.1%; dermatologists 10.2%, other specialists 1.7%, pharmacists 0.5% by own initiative of the patient 37.7% and by other means 1.5%.

### 3. Treatment

The average answer obtained to the question on the percentage of patients who come with a previous treatment was 59.3%. Regarding the acne treatment in general practice 84.5% of the dermatologists consider that the mild acne can be treated and 27.1% had a similar opinion for the moderate acne. 10% of the dermatologists do not think that the acne should be treated in any case in general practice. Related to the assessment of the different aspects of the treatment (from zero to ten) the following parameters were obtained: Efficacy 9.7, minimum side effects 8.6, satisfaction and quality of life 8.4, friendly use 7.9, low cost 6.6, other aspects 7.6. The different aspects were related to the main treatments as follows:

	Topical antibiotic	Systemic antibiotic	Topical retinoid	Oral Isotretinoin	Benzoil Peroxide	Topical Queratolitic	Oral Anti-androgens	Cosmetics
<b>Efficacy</b>	55.4%	84.1%	73.6%	96.0%	53.2%	33.3%	75.6%	17.7%
<b>Minimal incidence of side effects</b>	69.1%	22.2%	23.2%	5.6%	32.3%	38.8%	15.5%	60.8%
<b>Low treatment cost</b>	43.8%	23.2%	26.7%	4.0%	61.8%	56.1%	21.2%	8.0%
<b>Quality of life of the patient</b>	25.1%	32.9%	16.6%	32.8%	15.6%	15.7%	34.5%	65.8%

In the dermatologists' opinion, 30.9% of the patients either abandon or fail to follow the treatment due to the following reasons: lack of constancy 84.4%; lack of satisfaction 49.9%; intolerance to treatment 46.2%, lack of efficacy 33.1%; cost of the treatment 14.8%; other answers 4.2%.

87.2% of the dermatologists interviewed consider that there exists self-medication among the patients, corresponding to the following therapeutic groups: Cosmetics 88.4%; topical medicines 73.3%; oral medicines 3.4%.

#### **4. Importance of the environment**

The importance of the patient's environment was assessed as follows: (on a 1 to 10 scale): family 7.3%, psychological traumas 7.2%, friends 7.2%, working environment 7.1%, working or study fellows 6.6%.

#### **5. Cosmetics**

To the question "do you prescribe cosmetics for the acne?" 94.3% gave an affirmative answer, being their prescription as follows:

	<b>Most frequent</b>	<b>Second</b>	<b>Third</b>	<b>Fourth</b>	<b>Fifth</b>	<b>Least frequent</b>
<b>Soaps</b>	76.9%	11.5%	6.6%	2.7%	2.8%	0.9%
<b>Face pack</b>	3.5%	23.1%	21.1%	19.5%	16.7%	16.8%
<b>Make up</b>	6.9%	17.7%	23.6%	29.2%	19.8%	7.7%
<b>Photo protective</b>	2.7%	18.3%	17.9%	23.5%	23.4%	17.3%
<b>Lotions/ Tonics</b>	4.0%	8.5%	13.4%	11.1%	21.4%	38.2%
<b>Mechanical exfoliating</b>	6.1%	20.8%	17.4%	14.1%	15.9%	19.1%

The help given by cosmetic products to the acne is: a lot for 13.8%, quite for 51.5%, some for 26.6%, a little for 7.6% and none for 0.5% of the dermatologists interviewed.

The hygiene is very important in acne for 32.5%; quite important for 38.7%, important to some extent for 21.2%, little for 6.9% and none for 0.7% of the dermatologists interviewed.

## **6. Psychological factors**

The dermatologists interviewed assessed the effects of the acne on the social relations and the school and working environment (from 1 to 10) as follows:

	<b>Social relationships</b>	<b>Personal and family relationships</b>	<b>School Performance</b>	<b>Working Performance</b>
<b>Great effect</b>	13.5%	13.1%	2.0%	0.7%
<b>Important effect</b>	63.3%	62.1%	21.7%	10.3%
<b>Some effect</b>	21.4%	23.4%	47.5%	49.5%
<b>Little effect</b>	1.2%	1.5%	26.8%	34.5%
<b>No effect</b>	0.5%		2.0%	4.7%

88.7% of the dermatologists interviewed think that the acne implies any kind of emotional or behaviour disorder. Related to these data they consider that a psychological support, which can be given by the dermatologist himself, is useful, being the split the following: very useful: 3.2%, quite useful: 31.3%; useful to some extent: 48.4%, little useful: 16%; not useful at all: 0.7%, don't know/ no answer: 0.2%.

Regarding the influence of the stress in the outbreak of acne, 22.9% of the dermatologists interviewed considered it certain; 52.5% found it likely; 12.6% found it unlikely; there is certainly no influence for 0.5% and 11.6% don't know/ no answer.

On the other hand, the influence of acne in the apparition of stress, according to the dermatologists interviewed, is certain for 27.6%; likely for 60.3%, unlikely for 3% and 9.1% don't know/ no answer.

## **7. Information**

The answers to the question do you find it useful for the family to have more information? were: very useful: 11.3%; quite useful: 43.3%; useful to a certain extent: 32.8%, hardly useful: 12.1% and no useful at all: 0.5%. For the diffusion of the information the dermatologists prefer it to be imparted as follows: in schools (82.1%), through the mass media (54.6%), through the pharmacies (34%), by other means (6.9%); 3.7% don't know/ no answer.

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## **DISCUSSION AND CONCLUSIONS**

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Based on the analysis of the results obtained from the questionnaires fulfilled by the adolescent population, the following conclusions can be drawn up:

1. The prevalence of acne in the Spanish student population aged from 12 to 18 years is 73.59%, with no statistically significant differences between sexes; the prevalence reaches its maximum between the age of 14 and 16 years.

2. Regarding the severity of acne, 67.39% corresponds to very mild or mild acne; 27.51% to moderate and only 5.10% to severe acne, being no statistically significant differences between sexes. The most severe acne is found at the age of 17 years.

3. The duration of acne lasts between 12 and 23 months for 36.59% of the adolescents, despite the fact that a very important part of the sample is found between 0 and 11 months and between 24 and 35 months, corresponding to 21.83% and 24.28%, respectively.

4. 18.46% of the adolescents who are suffering or had suffered from acne have visited the dermatologist. This figure goes up to 30% if we only take into consideration the moderate and severe acne.

5. 64.38% of acne sufferers have followed any kind of topical treatment, women more frequently (75.45%) than men (53.43%). The difference is statistically significant.

6. Of the total, 5.64% have received a systemic treatment; this figure reaches 23% if we only consider those individuals who had visited the dermatologist.

7. The more important recommenders in cases of moderate and severe acne are the dermatologists and the parents, whereas in cases of mild to very mild acne,



the recommenders are the pharmacists, the parents, and there is also a high level of self-prescription.

8. 73% of the young people interviewed are worried about suffering acne, reaching this figure 82% in the case of women.

9. Regarding the repercussion in the quality of life, 12% of the adolescents with severe or moderate acne have stopped going out at any time due to this problem; 40% (60% in the case of severe or moderate acne) have a complex; 16% feel that acne affects their studies; 30% had problems with their fellows; 49% (63% if acne is severe or moderate) state that acne creates problems to establish relationships with the opposite sex.

Based on the analysis of the results obtained from the questionnaires fulfilled by the dermatologists, the following conclusions can be drawn up:

1. The patients who come to the dermatologist more frequently are aged between 15 and 20 years (36%), even if the group of patients with an age superior to 25 years has got a very important weight (29% of the total). The patients who visit the dermatologist with less frequency are those younger than 15 years old.

2. Most people visit the dermatologist following the advise of their general practitioners (48%), there is even a very important number of patients who go on their own initiative (38%). 85% of the dermatologists interviewed consider that acne can be treated by general practitioners, versus a 10% who consider that no kind of acne at all should be treated by any physician different from the dermatologist.

3. For the dermatologists the most important and most appreciated aspect of a pharmacological treatment is its efficacy (9.7 in a 1 to 10 scale), even if the side

effects play a very important role (8.6), the satisfaction/ quality of life of the patient (8.4) and the friendly use (7.9). The price was the least appreciated factor. From the point of view of the efficacy, 96% of the interviewed consider the oral isotretinoin effective; 84% the systemic antibiotics and 75% the oral antiandrogens, whereas the groups showing fewer side effects are the topical antibiotics (69%) and the cosmetics (60%). 75.3% of the doctors considers that the cosmetics are of great help or of a lot of help in the treatment of acne. The cosmetics offer a higher improvement in the quality of life of the patient in the opinion of 66% of the dermatologists interviewed. Perhaps this is the reason why 94% of the dermatologists prescribe cosmetics for the treatment of acne, mainly soaps, face packs and make-ups. The dermatologists believe that the hygiene is a very important or a quite important factor in the treatment of acne (71.2% of the interviewed).

4. 84% of the patients have no perseverance with the treatment and this is the main reason for their withdrawal or non-fulfilment. The lack of satisfaction with the treatment that they receive comes next. There is a great level of self-medication in the acne. 87% of the interviewed so state it. The cosmetics are the most used products.

5. The environment is very important for the patient, being all the factors analysed (family, friends, colleagues, psychological traumas) of high and similar importance. The dermatologists think that acne has a high repercussion in the personal or family and social relations of the patient, not being as high the school and working repercussion. 45% of the participants believe that it would be really necessary for the families of the patients to be able to dispose of information related to acne. A very important percentage (82%) believes that the appropriate

place to spread this piece of information is the school. The mass media also occupies a very important place, according to 55% of the dermatologists. In the third place and with less weight, mention is made to the pharmacy (34%) as an useful place to find information on acne.

6. 34% of the dermatologists consider that it is very useful or quite useful that the patient could dispose of psychological support, as acne can produce some emotional disorders or behaviour alterations in the opinion of the majority of the dermatologists (89%).

7. 75% of the dermatologists interviewed consider that the stress can very likely induce or certainly induce the outbreak of acne. On the other hand, 28% of the interviewed thinks that acne can lead the patient to a situation of stress without any doubt; being this scenario likely for 60% of them.

Regarding the prevalence of acne, the results of our study do not basically differ from those previously referred to in the medical literature <sup>(4)</sup>. Therefore, we can state, like other authors, that the acne is the most frequent illness of the human being and its prevalence is high during the adolescence <sup>(5)</sup>. In other recent studies, similar to ours <sup>(6)</sup>, like the one carried out in France on 913 school children aged between 11 and 18 years, the prevalence is of 72%, thus very similar to our findings (73.59%). Similarly, the period of higher prevalence corresponds to the age of 14-16 years for both sexes.

Nevertheless, the number of Spanish adolescents with acne who have received treatment (64.38%) is higher than the number of adolescents in other studies (41%). Similarly the number of young students with acne who have visited

the dermatologist is smaller (22.78% in our study, versus 66% in other studies) which is probably due to the high self-prescription showed in our results.

In our patients, the fact that 12% of them refrained from going out at any time as a consequence of this dermatosis, that 40% feel a complex, that 16% assure that acne affects their studies, that 30% had problems with their colleagues and that 49% mentioned difficulties to establish relations with people of the opposite sex, confirms the importance of the repercussion of the acne in the quality of life <sup>(7, 8)</sup>. Like in previous studies <sup>(3)</sup> women are more vulnerable to the psychological impact of the illness than men.

We found it outstanding the fact that, even if there exists a high percentage of adolescent patients, the number of adults older than 25 years suffering from acne who visit the dermatologist is not negligible. This is in accordance with the considerable prevalence of acne in the adult age, noted by other authors <sup>(9)</sup>.

It also seems important the majority consideration that acne should be treated by the dermatologist, except for a reduced number of cases of mild importance which, paradoxically very often represent only a first step in the evolution towards more severe conditions which will finally end in a specialised consultation.

Consideration should be given to the fact that even if for the dermatologists the most important and appreciated aspect of a pharmacological treatment is its efficacy, the presence of side effects, the satisfaction, the quality of life of the patient and the friendly use are also important and have practically the same weight. It seems clear that an anti acne treatment alone cannot be effective if it wants to be well accepted by the specialists.

All the different aspects considered have got a common conviction which is that it is important to improve the acne and therefore the quality of life of the patient, in order to diminish the reciprocal influence of the stress and the cutaneous acne lesions. It seems important to influence the environment of the patient (family, friends, colleagues, psychological traumas) that so much influences the acne sufferer. The psychological support, which can be given by the dermatologist himself, seems important for the success of the treatment.

Another alternative way to improve the results is to individually provide the patient and his family with adequate information, and the society collectively, mainly in schools and in the mass media.

The knowledge of these and other data can induce changes in the therapeutic, preventive and research strategies surrounding acne, which are necessary to improve the illness expectations <sup>(10)</sup>.

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