

## INVESTIGATIVE REPORT

# Acne as Seen by Adolescents: Results of Questionnaire Study in 852 French Individuals

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**Acne can have an important psychological impact. We surveyed 852 adolescents aged 12–25 years about their knowledge of acne and its treatment in a non-medical context. The study involved a questionnaire administered to callers to a youth telephone helpline in France. Callers were categorized into those who currently had acne, those who had had acne previously, and those who had never had acne. Most respondents (66.2%) had experienced acne symptoms, which were mild in 50.2% of cases and severe in 16% of cases. Often, acne had been long-lasting (>12 months in 49.6% of cases). Many thought that gender, excess weight, eating dairy products, and physical activity did not influence acne, and that frequent washing could improve acne. Eating chocolate and snacks, smoking cigarettes, sweating, not washing, touching/squeezing spots, eating fatty foods, using make-up, pollution, and menstruation were thought to worsen acne. The majority (80.8%) did not believe acne to be a disease, but rather a normal phase of adolescence, yet 69.3% agreed it should be treated. There was a preference for topical vs. systemic treatment. Many (38.6%) of the respondents with acne had not consulted a physician. Almost two-thirds of respondents wanted more information about acne. Providing more information about acne might increase the likelihood of them consulting a physician and getting better treatment for the condition. *Key words: acne vulgaris; adolescent; perception; quality of life; etiology.***

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In the past decade, a handful of studies have evaluated opinions and perceptions about acne among teenagers in various areas of the world (1–11). Gaining a better understanding of what adolescents think about acne is important for both treatment strategy and optimizing adherence. A recent worldwide study of patients with acne found that 50% of individuals reported that they knew “little” or “nothing” about the condition (12). The same study also assessed adherence with acne treatment;

notably, the proportion of patients who reported poor knowledge of acne was significantly higher in patients who had poor adherence as defined in the study.

Our French group has conducted two surveys of adolescents in cooperation with a national telephone helpline. During the initial survey and the current one, a questionnaire was administered to participants who were in their normal environment, away from the influence of a medical environment (hospital, office) or doctor. Both were conducted in collaboration with a not-for-profit organization, Fil Santé Jeunes (FSJ: Youth Health Helpline). FSJ offers a free, anonymous health-oriented telephone helpline for young people in France. Full details of the initial survey which focused on perceptions of acne among young people, including those who had never had acne, were reported by Pawin et al. (13). The second survey, reported here, focused more on the causes of acne according to teenagers and their perceptions of acne treatment.

## METHODS

Adolescents who called the helpline and who were not highly distressed or suicidal, as judged by the counsellor, were invited to participate in an exploratory questionnaire on acne. The study took place between March and June 2008. As this was an exploratory study, there was no *a priori* hypothesis.

### *Characteristics of Fil Santé Jeunes users*

The FSJ is a telephone helpline that was created in 1995 for people aged 12–25 years. It is supported by the French National Institute for Prevention and Health Education, Social Affairs Department, along with the Ministry of Health and the School for Parents and Educators. The telephones are staffed by trained counsellors. Callers remain anonymous. In 2008, a mean of 865 calls were answered per day. The caller's mean age was 19.6 years. The regional locations of calls were compatible with the population density in France. Most callers were of school age. Approximately one-third of callers were university students or were employed. The callers' principal concerns included birth control and sexuality (accounting for 55% of calls), interpersonal relationships (12.2% of calls), personal physical appearance (13.2%), distress (14%), and social problems (5.6%).

### *Questionnaire*

Questionnaires for all callers who agreed to participate in the study were counted even if all answers were not completed. The questionnaire included questions about knowledge of acne

and its treatment (see Appendix SI, available from <http://www.medicaljournals.se/acta/content/?doi=10.2340/00015555-1125>). The questionnaire was developed by our group of acne experts and corrected and adapted to the callers by FSJ. The questionnaire was tested for 2 weeks before implementation of the survey study to ensure that callers understood the questions. It was approved without modification.

### Statistical analysis

The main statistical analysis was descriptive and included the whole population of callers who agreed to answer the questionnaire, including callers who did not answer all the questions. We opted to perform analysis of each subgroup, taking as reference 100% of the population concerned for one-way tables. Subgroup analysis included four groups based on: acne status (respondents with previous or present acne vs. those who had never had acne), gender, acne severity (mild vs. moderate and severe), and acne duration (long duration acne ( $\geq 12$  months) and short duration acne). Percentages were calculated excluding missing values for two-way tables. The Fisher's exact test was used to identify the strongest trends.

The study size was calculated such that the 95% confidence interval (95% CI) was 5% for a percentage of 50%, a value maximizing the number of subjects. This led to approximately 400 observations for groups of interest. From a previous study, patients with or without acne each represented approximately 50% of the whole population; the total number of observations was then fixed at 800.

## RESULTS

A total of 11,756 callers were invited to complete the questionnaire; of these, 852 agreed.

### Description of the population of callers

Of the total number of the 852 agreed callers, 75.7% ( $n=591$ ) were girls and 24.3% ( $n=190$ ) were boys; this is similar to the gender ratio of the general FSJ callers. The mean age of the girls was 16.4 years (age range 10–25 years) and that of boys was 15.3 years (age range 12–25 years). All the 852 questionnaires were administered until the last question, but sometimes the patients refused to answer a question or gave no opinion.

Among the respondents, 46.4% ( $n=395$ ) reported that they had acne at the time of the study, 19.8% ( $n=169$ ) reported having had acne prior to the time of the study, and 33.8% ( $n=288$ ) indicated that they had never had acne. The majority of participants (80.3%,  $n=682$ ) were students, 2.1% ( $n=18$ ) were unemployed, 7.8% ( $n=66$ ) were employed, 2.1% ( $n=18$ ) were recorded as “other”, and there was no response for 7.8% ( $n=66$ ) of participants.

When asked how long acne symptoms had been present, 22.9% ( $n=129$ ) reported less than 3 months, 14.2% ( $n=80$ ) reported 3–6 months, 12.4% ( $n=70$ ) reported 6–12 months, and 49.6% ( $n=280$ ) indicated longer than 12 months; there was no response to this question for 0.9% ( $n=5$ ) of participants. Among the 564 participants reporting current or past acne, 50.2% ( $n=283$ ) reported that the acne was mild, 33.3% ( $n=188$ ) described their acne as moderate, and 16.0% ( $n=90$ ) reported that the acne was severe, and 0.5% ( $n=3$ ) had no answer recorded for this question.

### Opinions about acne

As shown in Fig. 1, most respondents felt that acne was normal (85.7%,  $n=730$ ) and a part of puberty (82.3%,  $n=701$ ); only 16.9% ( $n=144$ ) of respondents felt that acne was a disease. More respondents agreed that acne could resolve spontaneously (65.5% agreed, 29.7% disagreed). Most respondents felt that there was no relationship between acne and kissing (87.4%,  $n=745$ ), and that acne is not an infectious disease (77.6%), but substantial numbers of respondents perceived acne to be inherited from parents (25.2%,  $n=215$ ) or related to an individual's mood (37.3%,  $n=318$ ).

### Factors influencing the evolution of acne lesions

Participants were asked to state whether 21 factors had affected the acne, by worsening it, improving it, or having no impact. The results are reported in

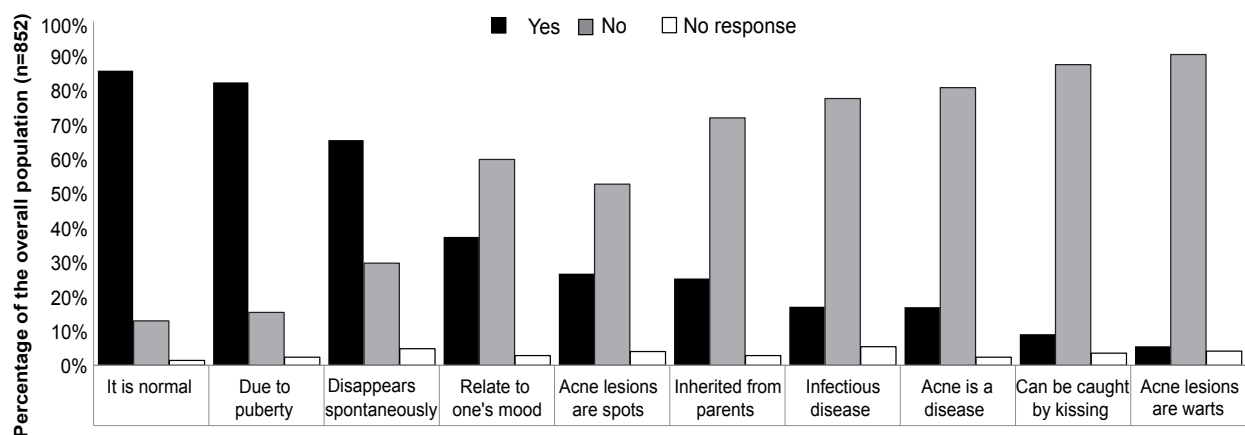


Fig. 1. Adolescents' opinions about acne.

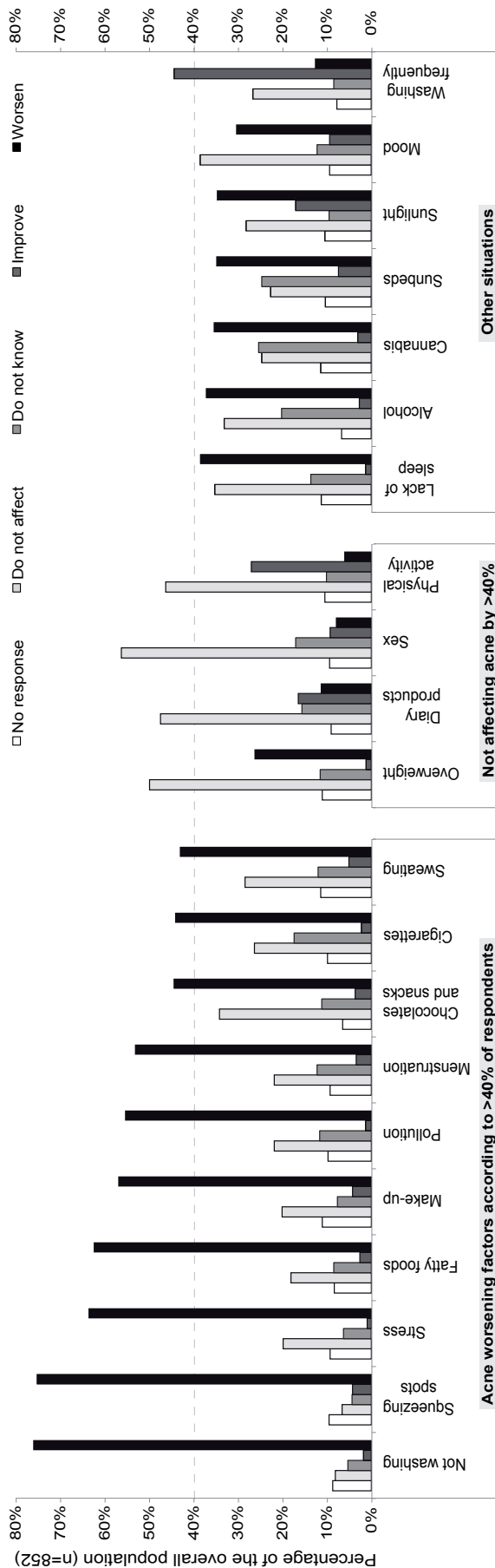


Fig. 2. Adolescents' opinions about the factors influencing evolution of acne lesions. The 21 factors have been divided into three subgroups according to the results. (A) Factors associated with worsening of acne according to >40% of respondents; (B) factors not affecting acne by >40% of respondents; and (C) other situations. The results are ordered by decreasing percentages of worsening effect. NR: non-responders.

Fig. 2. To summarize, ten factors (not washing, repeatedly touching or squeezing spots, stress, eating fatty foods, wearing make-up, pollution, menstruation, eating chocolate and snacks, smoking cigarettes, and sweating) were thought to worsen acne by more than 40% responders (Fig. 2a); over 40% of respondents considered that being overweight, eating dairy products, sex and physical activity did not affect acne (Fig. 2b), and that frequent washing was associated with an improvement in acne, whereas opinion was balanced for the other factors (lack of sleep, alcohol, cannabis, sunbeds, sunlight, mood) (Fig. 2c).

Perceptions and attitudes about acne care and treatment

A total of 70.9% (n = 604) subjects in our study believed that acne should be treated, 17.8% (n = 152) felt that no treatment was needed, and 11.3% (n = 96) had no recorded response to this question. The 604 subjects who indicated that acne needs treatment were asked about which treatments should be used. Respondents felt that acne should be treated with topical agents prescribed by a physician or pharmacist, a healthy lifestyle, and systemic drugs prescribed by a physician. They did not believe that acne should be treated by going to a psychologist, or by using an antiseptic, products purchased in general stores, or cosmetic methods. Opinions were split on the utility of personal hygiene products to treat acne (Fig. 3).

When asked if there is a treatment that might best cure acne, 57% (n = 486) of the respondents chose topical drugs, 18.8% (n = 160) chose systemic drugs, 11.0% (n = 94) chose laser therapy, and 13.1% (n = 112) had no recorded answer. However, the majority of respondents (64.0%, n = 545) believed that proper treatment of acne would include using a medication every day. Less than half (47.7%, n = 406) of the overall population (n = 852) felt that acne could be permanently cured. When asked to say how quickly the "ideal" treatment for acne would work, most respondents who had acne (n = 564) answered either "within one month" (36.9%, n = 208) or "one month or more" (46.6%, n = 263).

Opinions about physician consultation

When asked about physician consultations (questions answered only by current or past acne sufferers), 12.4% (n = 70) reported that they regularly see a physician for acne, 27.1% (n = 153) reported occasionally, 10.5% (n = 59) reported once or twice, and 32.3% (n = 182) reported never. The most common reasons for not consulting a physician were that parents believed that acne would resolve spontaneously (52.7%, n = 127) and the respondents thought that acne is normal and that nothing could be done for it (55.2%, n = 133).

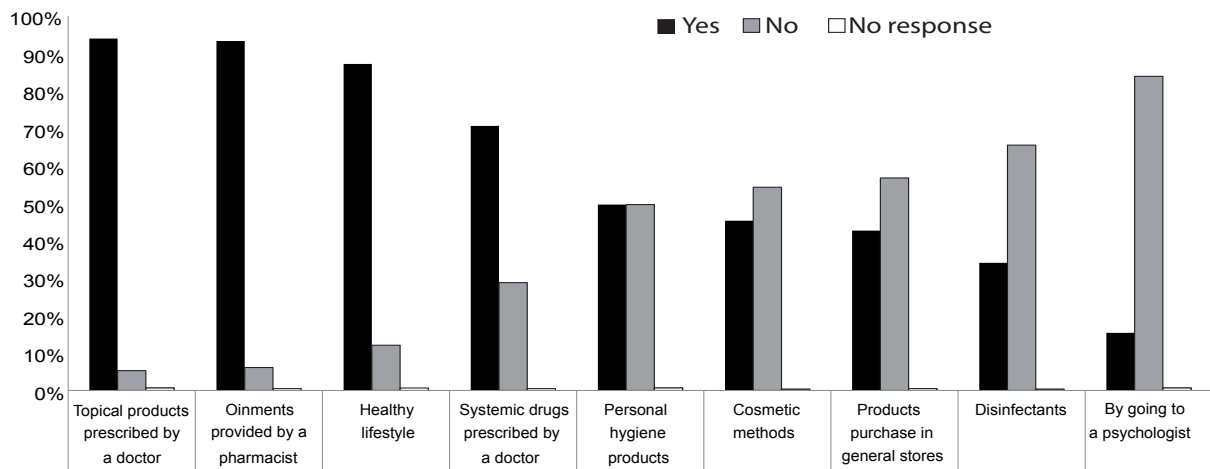


Fig. 3. Views of what treatments should be used for acne, among patients who believed that acne should be treated ( $n=604$ ).

### Subgroup analyses

*Current or past acne sufferers vs. respondents with no history of acne.* Respondents who had never experienced acne symptoms were more likely to perceive that acne is not a natural part of puberty (21.7% vs. 12.7%,  $p=0.0012$ ).

*Gender.* Boys were more likely to say that acne does not need treatment (33.7% vs. 15.8%,  $p<0.0001$ ) and were less interested in information about acne (61.4% vs. 77.3%,  $p=0.0037$ ).

*Severe acne vs. mild-moderate disease.* Respondents who rated their acne as severe ( $n=22$ ) had a longer acne duration ( $>12$  months: 63.3% vs. 47.1%,  $p=0.008$ ). They were more likely to consider acne as a disease (42.0% vs. 13.6%,  $p<0.0001$ ), and specifically an infectious disease (34.1% vs. 15.9%,  $p<0.0001$ ). This group was also more likely to indicate that they consult a physician regularly (36.4% vs. 11.6%,  $p<0.0001$ ). Reasons given for not consulting a physician were fear (27.3% vs. 8.2%,  $p=0.013$ ) and parents' reactions (31.8% vs. 10.5%,  $p=0.010$ ).

## DISCUSSION

An important message of this survey is that clinicians should be aware of the widespread perception that acne is considered as "normal" among adolescents. The large majority (80.8%) of respondents did not perceive acne as a disease, but rather as a normal phase of adolescence, as shown by 85.7% stating that acne is normal during adolescence, 82.3% saying that acne is due to puberty, and 65.5% reporting the belief that acne improves spontaneously with age. At the same time, 79% of the same subjects believed that acne should be treated. Interestingly, a study by Uslu et al. (1) also reported that 59.3% of subjects did not believe acne to be a disease, but 83% indicated that treatment

for acne was necessary. However, in a study of Polish adolescents, less than half (47.7%) considered acne to be a transient condition, and one that did not need to be treated (2). Considering that acne is not an illness, but at the same time declaring that acne has to be treated appears surprising. One explanation of this contradictory phenomenon could be that teenagers may consider that acne is a physiological event of adolescence, but also want to suppress it because of the impact on daily relations with family and friends. Notably, Brajac et al. (8) studied the perceptions of both acne patients ( $n=100$ ) and family physicians ( $n=120$ ), and reported that 52% of the patients and 44% of the physicians considered acne to be a trivial condition, suggesting that better education is needed for both patients and physicians.

In order of frequency of responses, our study population felt that not washing, excoriation, stress, eating fatty foods, wearing make-up, pollution, and menstruation aggravate acne. Conversely, frequent washing was considered somewhat beneficial. In a review of the literature, we were able to identify nine recent studies that asked adolescents their opinions about factors that cause or exacerbate acne; these studies were conducted in a variety of regions, including North America, Europe, the Middle East, and Asia (1–4, 6, 7, 9–11). Eight of the nine studies reported that most adolescents perceive poor diet to worsen acne (1–4, 6, 7, 10, 11), and 6 of the studies reported hygiene to be an important factor contributing to acne (1–4, 10, 11). Hormones and/or menstruation were mentioned as causes of acne in 8 of the 9 studies (1–4, 7, 9–11). Other factors that were commonly identified in these studies, but not as often as diet, hygiene, and hormones, included stress (4/9 studies) (6, 7, 9, 10) and genetics (3/9 studies) (1, 3, 4). Thus, the results of our survey confirm that teenagers have a general understanding that acne is not an infectious disease and often has a hereditary basis. However, we also found that teenagers believe that external factors

can significantly affect acne, including eating dairy products, alcohol intake, and cannabis use.

Information gathered from the internet probably plays a central role in the understanding that teenagers have about acne.

Our study provides information about the perception of acne among teenagers with or without acne. Most respondents in this study indicated they had, or previously had had, acne (66.2%), which they considered mild in 50.2% of cases and severe in 16.0% of cases. Respondents were not assessed by a dermatologist; thus this was their own opinion, with no medical influence. Interestingly, concerning severe acne, the proportion of 16% is similar to that seen in the literature from different countries (15).

Thus, our group of subjects appears to be representative of the general population and of other studies. A low proportion of FSJ callers volunteered to participate in our questionnaire study; however, it should be remembered that the majority of callers were interested in discussing sexuality and contraception. We feel that this explains the high number of FSJ callers who declined to answer our questionnaire. In addition, the questionnaire was fairly lengthy, and many callers may not have had enough time to cover their primary concern and complete the questionnaire in one session.

Concerning the subpopulation of teenagers with acne, it is notable that approximately half (49.6%) of respondents had had acne symptoms for more than 12 months, confirming the chronic evolution of acne in the majority of patients. In addition, 84.4% of respondents indicated having friends or immediate contacts with acne. The mean age of respondents was in the range of acne (16.4 years for girls and 15.3 years for boys). The majority of respondents were female (75.7%), which is probably explained by a national FSJ campaign on contraception that was being conducted at the time of the survey, which resulted in calls to FSJ for more explanations. Thus, there may be some selection bias. In addition, the respondents' views of acne may be affected by the type of acne that the caller visualized when answering the questions. We note that mild acne is often considered by the public and the majority of patients as a physiological phenomenon, but also that this is not always the case, particularly with patients who have long-standing or adult acne. Furthermore, moderate and severe acne are generally considered by the public and patients to be illnesses. In addition to the number of lesions on the face, the duration of acne, presence of scars, and truncal acne are all considered by the general population to be factors that differentiate acne as an illness from a physiological phenomenon.

Concerning acne and treatment, more than 70% of respondents wanted to treat their acne and considered that topical treatments prescribed by a healthcare professional (doctor or pharmacist) coupled with a

healthy lifestyle are good treatment options. Finally, two key pieces of information identified by this questionnaire should be considered by all dermatologists. First, teenagers want to treat their acne. Secondly, most teenagers do not have a clear idea about the best treatment approach; they tend to prefer topical drugs, but consider that systemic treatments may provide more efficacy. Thus, if the dermatologists want to increase the likelihood that a teenage patient will adhere to his or her acne treatment (potentially improving treatment outcomes), they urgently need to create educational tools and spend time educating patients with acne during their consultation (12).

Concerning the subgroup analysis, there was no significant difference in the perception of acne and acne treatment between current/past acne sufferers and teenagers with no history of acne, except that teenagers without acne perceived acne more as a natural part of puberty than a disease. In the acne group, patients who reported that they had severe acne vs. those reporting mild and moderate acne were more likely to believe that acne is an infectious disease, and they consulted a physician more regularly.

In conclusion, this survey shows that acne is not usually perceived by teenagers as a disease, but rather as an unavoidable part of adolescence. However, the majority believe that treatment is useful for acne. Among those who considered that acne should be treated, topical treatment was preferred, even if systemic treatment was generally considered to be more efficacious. While teenagers reported having some understanding of acne, they also clearly want more information from doctors about acne and its treatment. Thus, to increase the quality and quantity of the information given during the consultation, practical leaflets could be a help, in addition to discussion with the patient, which remains essential. Patient education is probably one of the best methods to increase the success of acne treatments.

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