

Analysis of adolescent acne perception, skincare behavior and ingredient profiles of selected natural cosmetic products

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Abstract

Acne is one of the most common conditions that adolescents go through during their puberty. The aim of this research is to study the use of the natural bio cosmetics by teenagers for acne and to assess their awareness about such products. The research was conducted through a questionnaire we shared with students aged between 12-18 at Konštantínova 2, Prešov. The results showed that acne is extremely common among teenagers; 34% reported frequent acne and 39% occasional acne. There's a lack of knowledge about this topic as only 29% think that bad hygiene mainly causes acne while 87% think that it's the diet. Additionally, most of them reported that they obtain information mostly from the internet and social media. This highlights the need for better education on acne and skincare among adolescents.

Keywords: acne; skin; skincare; adolescents; natural products; teenagers

1 Introduction

The skin is the primary protective and the largest organ of the human body. It protects us from all sorts of toxins, microorganisms, ultraviolet radiation, trauma and extreme temperatures. Acne is characterised by the formation of blackheads, pimples or inflamed lesions. It's a skin condition that happens when hair follicles (the small sac in which hair grows) become plugged with oil and dead skin cells. In medicine, in order to diagnose and treat different skin conditions like acne accurately, it is crucial to understand the structure and the function of skin. In addition, everyday skincare habits like how often we cleanse the skin and which products we use to cleanse it influence acne's severity. In adolescence, hormonal changes play a key role in how the skin behaves and lead to dermatological problems like acne. They also affect how adolescents do their daily skincare and which products they use. The aim of this research is to analyse adolescents' perception of acne, their skincare behavior and the ingredient profiles of selected natural cosmetic products.

2 Literature review

Because of this, many start to use skincare products such as "natural" or bio cosmetics, which are considered as a safer option. However, the term "natural" is not always controlled or regulated and how well the products work depends strictly on their ingredients.

The analysis focused on identifying which active ingredients are relevant for treating acne. Active ingredients are scientifically proven compounds that directly target specific concerns at a cellular level. Some common active ingredients were salicylic acid, clay, zinc,...

We also focused on identifying which components could irritate the skin like alcohol and fragrance.

3 Methodology

The research was done among 157 students aged between 12–18 at Konštantínova 2, Prešov in Slovakia. An online questionnaire was distributed via Teams on 15/04/2026 and was the main research method from which we collected data. It included multiple choice questions (single answer and multiple answers) and one optional short answer question. It was anonymous and didn't collect any personal data.

The questionnaire focused on skincare habits, where acne forms the most and adolescents' awareness of natural bio cosmetics. It had 5 sections: Basic information, skin type and occurrence of acne, skincare habits, lifestyle, knowledge and myths.

We selected 3 natural bio cosmetic products from 3 popular brands in Slovakia and compared them theoretically based on their ingredients and the effect the ingredients have on acne based on scientifically documented effects of cosmetic ingredients. The brands chosen were Alverde, Purity Vision and Balea.

Table 1.
The products

Brand	Product	Ingredients
Alverde	Ultra Sensitive Cleansing Gel, 150 ml	Aqua, Glycerin, Coco-Glucoside, Alcohol, Disodium Cocoyl Glutamate, Xanthan Gum, Citric Acid, Sorbitol, Zinc Lactate, Levulinic Acid, Sodium Levulinate
Alverde	Clear Cream with Healing Clay and Organic Green Tea, 100 ml	Aqua, Sunflower Oil, Sorbitol, Coco-Glucoside, Cetearyl Alcohol, Healing Clay, Glycerin, Almond Oil, Green Tea Extract, Tocopherol, Citric Acid, Parfum, Linalool, Citronellol, Vanillin
Alverde	Sensitive Cleansing Oil, 100 ml	Sunflower Oil, Polyglyceryl-2 Sesquileate, Jojoba Oil, Tocopherol, Bisabolol, Chamomile Extract, Grape Oil, Caprylic/Capric Triglyceride
Purity Vision	Rose Cleansing Oil, 100 ml	Jojoba Oil, Vitamin E, Damask Rose, Argan Oil, Grape Oil
Purity Vision	Vitamin Cleansing Balm, 70 ml	Sea Buckthorn Oil, Carrot, Shea Butter, Jojoba Oil, Coconut Oil, Almond Oil, Avocado Oil
Purity Vision	Chamomile Oil, 100 ml	Argan Oil, Jojoba Oil, Bisabolol
Balea	Coffee Scrub, 175 g	Caffeine, Shea Butter
Balea	Hautrein Cleansing Gel for Problematic Skin, 150 ml	Salicylic Acid, Zinc, Bisabolol
Balea	Cleansing Oil, 100 ml	Argan Oil, Sunflower Oil, Vitamin E

We selected these products because they were the most commonly bought products (according to product availability and popularity in the market in Slovakia).

The analysis focused on identifying which active ingredients are relevant for treating acne and which components are potentially irritating (like alcohol and fragrance). The products we selected were compared based on their ingredient profiles and the scientifically documented effects of their ingredients on acne. We analyzed the data using pie chart and bar charts to see the trends and patterns in adolescents' habits and product use.

4 Results and Discussion

4.1 Basic characteristics

The questionnaire was completed by 157 students between 12-18 years old. 4% of respondents were 12-13 years old, 22% were 14-15, 36% selected the 16-17 age group and 38% selected the 17-18 age group. The majority of the respondents were female.

4.2 Skin type and acne

The most common skin type reported was combination skin (40%) (see figure 1). 34% reported frequent acne and 39% reported occasional acne (see figure 2). It was reported that acne was mostly located on faces (see figure 3).

3. How would you determine your skin type? (Skin type describes how much sebum your skin naturally produces and how it is used throughout the day.)

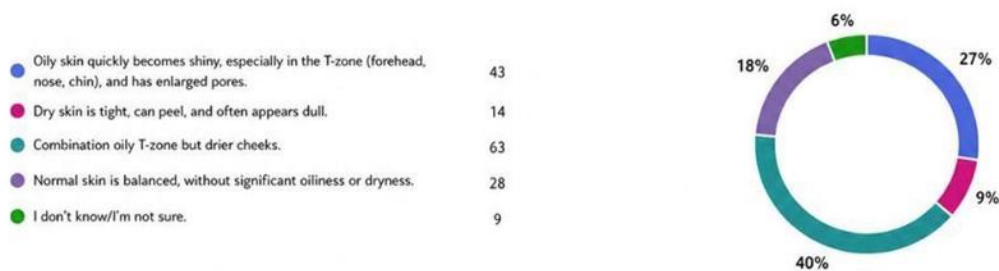


Figure 1.
Skin type distribution

4. Do you currently have acne? (Acne is the appearance of pimples, blackheads or whiteheads, and inflamed rashes).

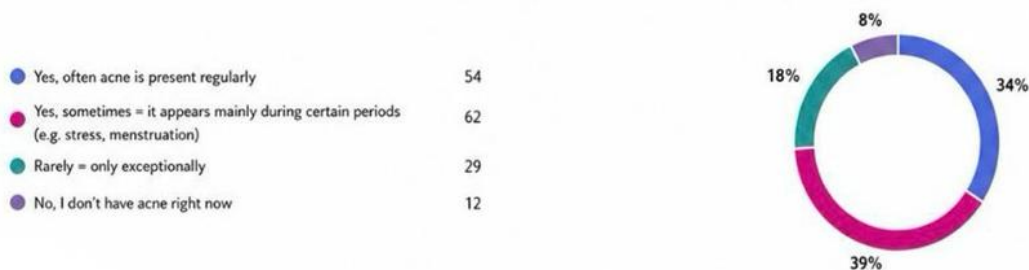


Figure 2.
Acne frequency

5. Where does your acne most often occur?

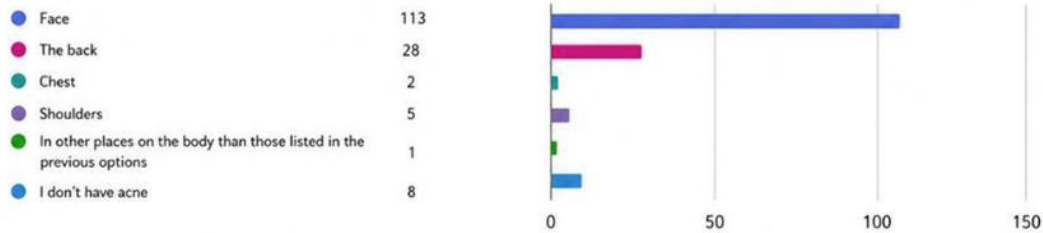


Figure 3.

Acne occurrence

The results reinforced that acne is a common problem for teenagers with the majority of the respondents reporting that they experience frequent or occasional acne. They demonstrated that combination skin is the most common skin type and acne exists most commonly on faces. All these findings demonstrate that skin problems are extremely common among adolescents.

According to credible online sources, these findings are explained by hormonal and biological changes that they encounter during puberty. For example, increased levels of androgens stimulate the sebaceous glands and that leads to more sebum production which causes the pores to clog and form acne. Skin development in adolescents is the most common cause of acne.

4.3 Skincare habits

Most respondents reported that they wash their face twice daily (64%). The most commonly used products reported were cleansing gel and micellar water (see figure 4). 50% reported that they use multiple skincare products regularly and 11% reported they do not use any products (see figure 5).

9. What products do you use to wash your face?
(you can select more than one option)

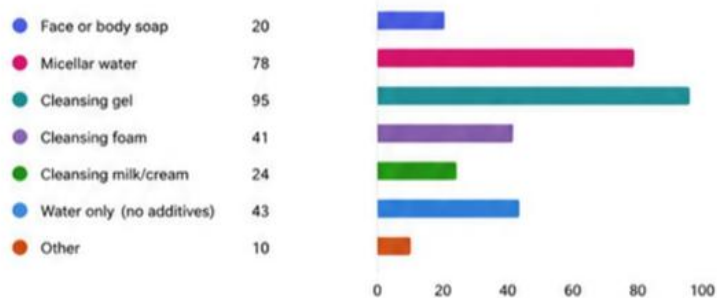


Figure 4.

Most commonly used products types

10. Do you regularly use any cosmetics?

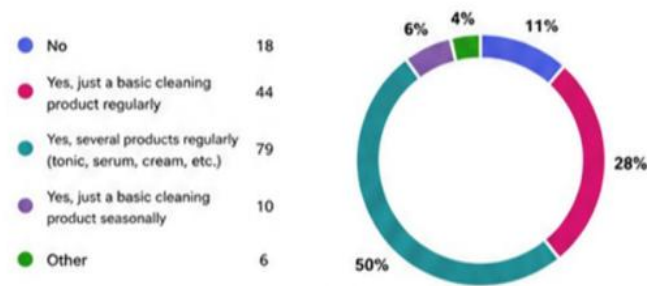


Figure 5.
Product usage frequency

In terms of skincare habits, the majority of respondents reported that they wash their face twice daily and that they use cleansing products such as cleansing gels and micellar water. Moreover, half of them reported that they use multiple products regularly and this shows that teenagers are frequently trying to manage their skin conditions. The routines may vary depending on their product choice and how they are using them.

In addition to the data we got from the questionnaire, we selected 9 cleansing natural bio cosmetic products and did a comparative analysis of them. We found out that only a limited number of them contained active ingredients targeting acne such as salicylic acid and zinc.

Most of them focused primarily on skin barrier support, hydration and soothing effects. Ingredients like plant oils, bisabolol and chamomile might support the skin and reduce irritation but they do not focus on clogged pores and sebum production. Moreover, such products labeled as “natural” contained alcohol or fragrance which can cause irritation and make the skin more sensitive. Thus, there is a mismatch between the products that are used commonly by teenagers and those that are actually effective for acne. Hence, the word “natural” is always associated with safety and effectiveness but the ingredients say otherwise. This could lead to incorrect products choices by teens especially when they combine them with the false and incomplete information from social media.

4.4 Lifestyle

The majority of the respondents reported that they sleep 6-7 hours per night (see figure 6). 57% of them believed that lack of sleep results in acne and 63% reported that their acne increases when they're stressed (see figure 7).

12. How many hours of sleep do you usually get during school days?

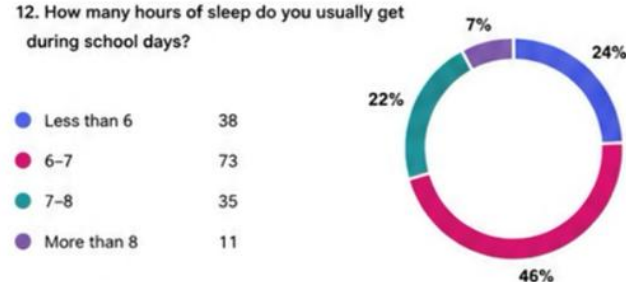


Figure 6.
Sleep duration

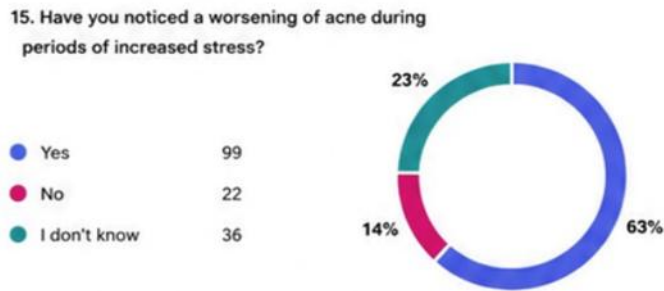


Figure 7.
Stress influence on acne

Lifestyle also seems to be a crucial part. The majority reported sleeping from 6 to 7 hours per night and more than half of them think that the lack of sleep worsens acne's state. Furthermore, 63% reported that their acne increases when they're stressed. This reveals that there is a connection between lifestyle and mental health and the skin's condition. This is supported by previous research that focused on the correlation between stress, inflammation and hormones too.

4.5 Knowledge and myths

29% of respondents believed that the main cause of acne is poor hygiene (see figure 8). 87% believed that diet has an important impact.

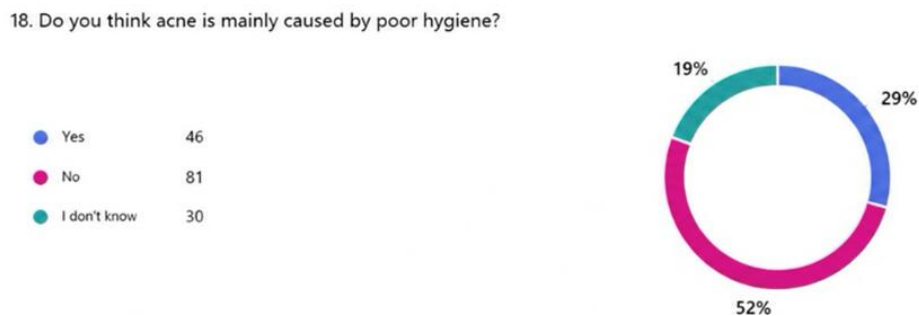


Figure 8.
Opinion on whether acne's main cause is poor hygiene

The results also suggest that teenagers understand acne differently because only 29% of respondents think that acne's main cause is poor hygiene while an extremely high percent (87%) of them believed that diet has an important impact on acne. The majority get or learn information about skincare on the internet and social media. This reveals that even though some myths may be less spread, a lot of adolescents know very little especially about diet's effect on acne. We can then see that teenagers may rely on inaccurate or incomplete information on social media.

4.6 Source of information

And finally, the main source of skincare information was the internet and social media. The fact that teenagers mostly learn about the skin on the internet and social media, suggests that they trust internet sources instead of seeking medical advice from a professional. This might lead to spreading false information.

This project is limited to just students from one school which may not be 100% accurate especially that the answers were self reported but despite these limitations, the findings indicate that it's vital to improve education about acne, its causes and skincare to help

adolescents make better daily decisions and reduce acne as well as improve their physical and psychological wellbeing.

5 Conclusion

In conclusion, we can safely say that many teenagers use skincare products such as natural bio cosmetics even though their understanding of acne and its causes is not enough. They acquire most of their skin knowledge from the social media and this influences their knowledge. Overall, the results shed light on the need to improve skin education among teenagers.

References

- Arora, M. K., Yadav, A., & Saini, V. (2011). Role of hormones in acne vulgaris. *Clinical Biochemistry*, 44(13), 1035–1040. <https://doi.org/10.1016/j.clinbiochem.2011.06.9848>
- BENU Pharmacy. (n.d.). Bisabolol – skin benefits.
- Colorescience. (2026). What are active ingredients in skincare?
- dm drogerie markt Slovakia. (2026). Product ingredient database for Balea, Alverde and Purityvision skincare products.
- Healthline. (n.d.). Chamomile and skin benefits.
- Healthline. (n.d.). Stress and acne.
- Kim, S., Park, T. H., Kim, W. I., Park, S., Kim, J. H., & Cho, M. K. (2021). The effects of green tea on acne vulgaris: A systematic review and meta-analysis of randomized clinical trials. *Phytotherapy research*, 35(1), 374–383. <https://doi.org/10.1002/ptr.6809>
- Liu, Y., Dan, Y., Yang, J., He, X., Liu, J., Yi, Y., Chen, X., Yin, X., Song, W., Niu, Y., Zheng, Y., & Ai, Y. (2025). Clinical Efficacy of a Salicylic Acid-Containing Gel on Acne Management and Skin Barrier Function: A 21-Day Prospective Study. *Journal of Cosmetic Dermatology*, 24(7), e70353. <https://doi.org/10.1111/jocd.70353>
- Lopez-Ojeda, W., Pandey, A., Alhajj, M., et al. (2026). Anatomy, skin (integument). In StatPearls. StatPearls Publishing. <https://www.ncbi.nlm.nih.gov/books/NBK441980/>
- Mayo Clinic. (2024). Acne: Symptoms and causes.
- Searle, T., Ali, F. R., & Al-Niaimi, F. (2022). Zinc in dermatology. *Journal of Dermatological Treatment*, 33(5), 2455–2458. <https://doi.org/10.1080/09546634.2022.2062282>