

Education and aesthetic treatment of acne-prone skin



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ABSTRACT

Objective: To investigate the benefits that cosmetic and educational practices provide to the skin of acne patients. **Materials and Methods:** the research was a case study composed of six volunteers divided into two groups: G1, who received treatment in the cabin, and G2, who received treatment in the cabin, in addition to a cosmetic acne treatment kit for use

in homecare. **Results:** The study established a comparison between the treatments performed in the cabin and those administered in homecare, focusing on the analysis of their impact on the emotional and behavioral spheres of the participants. The results revealed a notable improvement in the volunteers' perception of acne, who reported less impact on their daily activities. The study emphasized the relevance of providing authoritative information and guidance on acne and proper skin hygiene, culminating in a significant increase in participants' knowledge of the condition. The survey found that beliefs related to makeup use and the influence of diet on acne remained relatively unchanged. The levels of satisfaction among the participants were considerable, especially in the group that adhered to the homecare treatment, corroborating the efficacy and acceptance of the cabin and homecare treatments. **Conclusion:** The treatment in the cabin and homecare was more satisfactory than that performed only in the cabin, although both had positive results. People who participated in the study are shown to be more educated in acne skin care.

Keywords: Acne vulgaris, Anti-acne cosmetics, Facial aesthetics.

1 INTRODUCTION

Acne vulgaris, a chronic inflammatory dermatosis of multifactorial origin, impacts the pilosebaceous follicles of the skin, manifesting itself by the presence of comedones, papules, pustules and nodules, which can present both openly and closedly. Although acne vulgaris is not associated with an imminent risk of mortality, its occurrence invariably triggers a considerable burden of morbidity, manifesting itself through physical sequelae as well as substantial psychological shocks. The latter manifest themselves through the inherent propensity to form permanent scars, the erosion of self-esteem, and can even trigger depression and anxiety (BALDWIN and TAN, 2021).

Acne is extremely common all over the world. A study conducted by the Brazilian Society of Dermatology in 2018 on the nosological profile of dermatological consultations confirmed that the main diagnosis of dermatological consultations was acne (MIOT et al, 2018).



Although the classification of acne is not universal, it is possible to classify it into degrees or types, and this classification guides treatment. Basically, there are 5 degrees of severity, and the closer to 1, the less severe, and the closer to 5, the more severe the acne. It is also possible to categorize them as comedonic, papulopustulous, nodular-cystic, conglobata, and fulminant acne (BESSA, BESSA, and MORAES, 2020). The beautician can act freely in grades 1 and 2, but in grade 3 there may be a need for medical intervention. Grades 4 and 5 are treated by doctors. Thus, educational and therapeutic aesthetic approaches can prevent progression to more severe degrees.

Based on the above, the following questions arise: What are the benefits that cosmetic and educational procedures provide for the skin and the quality of life of people with acne? Does the combination of in-cabin treatments and in-home care offer superior results compared to in-cabin treatment?

1.1 MAIN OBJECTIVE

To investigate the benefits that cosmetic and educational practices provide to the skin of acne sufferers.

1.2 SECONDARY OBJECTIVES

To compare the results of acne skin treatment in people who underwent cabin treatment and those who underwent cabin treatment and *homecare*.

Describe the guidelines on acne and facial care to prevent its appearance or worsening.

Analyze, through a questionnaire, the socio-emotional impact that acne causes in the person's life.

1.3 SOCIAL RELEVANCE

This project gained relevance by undertaking efforts to sensitize the community about the necessary care for acne-prone skin, aiming to prevent irreversible damage to the integrity of the skin and, consequently, minimize the resulting emotional and aesthetic impacts. In addition, it aimed to provide a proposal for a cosmetic treatment program that would prove to be efficient, effective and effective.

Thus, the main purpose of the project was to contribute to improving the quality of life of individuals, intervening positively in facial aesthetics and in the restoration of self-esteem.

2 PROPOSED METHODOLOGY

This research was classified as a case study, which constituted a scientific research strategy focused on the analysis of contemporary phenomena. In this sense, this study sought to analyze the



cosmetic conducts performed in the cabin and the *care in homecare*, focusing on the improvements observed in the skin and in the quality of life of people affected by acne.

The research project was submitted in compliance with the 2023 notice, for the research line "Scientific and technological development in health, aesthetics, beauty and well-being", and was approved by the evaluation committee in February 2023 in the Scientific Initiation Program of Celso Lisboa, in the senior category. It complied with the guidelines of the Research Ethics Committee, and all participants voluntarily signed the Free and Informed Consent Form.

The theoretical basis of this study was supported by articles in Portuguese and English, obtained from renowned virtual data sources, such as Wiley Online Library, PubMed and Google Scholar. The search for data was performed using single and/or combined keywords, including terms such as "acne vulgaris", "acne vulgaris and cosmetology" and "facial aesthetics".

After the selection of the volunteers, they were submitted to a comprehensive facial evaluation, which included a detailed anamnesis and the recording of photographs. In addition, the participants answered a questionnaire consisting of 10 questions, covering personal information and knowledge about acne.

The volunteers were divided into two groups: G1, who received treatment in the cabin, and G2, who received treatment in the cabin, as well as a cosmetic acne treatment kit for use in *homecare*.

The procedures performed in the cabin were identical for both groups. However, only G2 participants received the aforementioned kit for homecare application.

The treatment program for acne control was started with a total of 6 sessions, performed twice a week. After the completion of these 6 sessions, all participants underwent a reassessment and answered the questionnaire again.

During the sessions, the participants were properly guided on the specific care for acne-prone skin, and any doubts that arose were clarified. This included information on what acne is, appropriate care, recommended cosmetic products for use, and practices to avoid. It is important to mention that all cosmetic products used in treatments, both in cabins and in *homecare*, are *approved by ANVISA and are authorized for both professional and homecare use*.

The treatment program for acne control began with a total of 6 sessions, held twice a week at the Aesthetics and Cosmetics Laboratory, located at the Celso Lisboa University Center, in Rio de Janeiro.

After the completion of these 6 sessions, all participants underwent a reassessment and answered the questionnaire again. The collected data were subsequently analyzed qualitatively and through descriptive statistics.

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care, recommended cosmetic products for use, and practices to avoid. It is important to mention that all cosmetic products used in treatments, both in cabins and in homecare, are cosmetics for home use, have ANVISA approval and are authorized for both professional and homecare use.

The in-cabin protocol was conducted with the anti-acne cosmetic kit for professional use. Before starting the treatment, all volunteers underwent a patch test. If anyone manifested signs or symptoms that suggested an allergic reaction to the components of the cosmetic formulation, they were disqualified from the study. The patch test involved applying a small amount of the cosmetic to the region behind the ear. After a period of 24 hours, the area was washed. In the event of skin irritation, itching, or burning at or near the site, the use of the product was contraindicated.

The anti-acne cosmetic kit for professional use has been developed with triterpene extracts and a family of pre- and post-biotics containing essential active ingredients for acne control and the promotion of healthier-looking skin. The professional line consisted of six items: liquid gel soap - 100ml, anti-acne drying mask - 200g, tonic for acne skin - 100ml, drying fluid - 20ml, anti-acne fluid - 20ml and soothing sealing mask - 100g.

The stages of the treatment followed the criteria established by the company that produces the cosmetics and were strictly adopted, namely:

1. It started by applying the liquid gel soap, performing gentle massages for 2 minutes. Subsequently, it was removed with a cotton pad moistened with water.
2. Then, a layer of the drying mask was applied to the face with the help of a brush. He waited 15 minutes and then withdrew with a cotton pad moistened with water.
3. The toner was applied to the skin, without the need to remove it.
4. 10 drops of the anti-acne fluid were applied to the face, patting the region lightly until it was completely absorbed. It was not necessary to remove the product.
5. In the same way, 10 drops of the drying anti-acne fluid were applied to the injured areas, patting lightly until it was completely absorbed. The product has not been removed.
6. 4 pumps of the soothing sealing mask were applied all over the face and left on for 5 minutes, without removing the product.
7. The treatment was completed by applying the sunscreen that provides high protection against UVA and UVB rays.

The G2 group, which underwent the treatment in homecare and received an acne treatment kit for use in homecare, was provided with the following components: facial liquid soap (100 ml) and gel for skin with acne (60 ml).

The stages of the treatment followed the criteria established by the company that produced the cosmetics and were carefully guided and strictly followed by the volunteers, as described below:



1. They applied the facial liquid soap all over the face with circular motions and then rinsed thoroughly.
2. They applied a portion of anti-acne gel all over her face. Daily use. It can be used in the morning.

2.1 INCLUSION CRITERIA

Volunteers who presented acne in grades I to II and who strictly complied with the previously established inclusion criteria participated in this study. These criteria, fundamental for the selection of participants, were as follows:

- First, the volunteers had to be over 18 years of age, thus ensuring that they were of adult age and could fully understand the procedures and implications of the study. In addition, the survey was open to people of both sexes, ensuring a diverse sample for analysis.
- Another important point was the requirement that participants be properly immunized against the coronavirus (SARS-Cov2). This measure aimed to ensure the safety and health of everyone involved, minimizing the risk of infection during the study.
- Finally, the volunteers' adherence to the study required the signing of the Free and Informed Consent Form, in strict accordance with the regulations established by Resolutions No. 466/12 and 510/16 of the National Health Council. This term was an assurance that participants were aware of the objectives, procedures, and potential risks involved in the research, as well as ensuring that their participation was voluntary and based on an informed decision.

2.2 EXCLUSION CRITERIA

In the conduct of clinical trials and scientific research, the definition of exclusion criteria plays a key role for the appropriate selection of participants. These criteria, when applied judiciously, aim to ensure the validity and reliability of the results, as well as the safety of the participants.

In the context of this study, several exclusion criteria were established to ensure that the research is conducted in a rigorous manner and that the results are representative of the study population. One of these essential criteria concerns the presence of allergy to components of cosmetic products intended for the treatment of acne. This exclusion is imperative to avoid possible adverse allergic reactions that may arise during treatment and compromise the safety of participants.

Another important criterion was related to the previous use of topical acne products in the last three months, with the exception of cleansers, moisturizers, and sunscreens. The exclusion in this context was justified by the need to evaluate the performance of the cosmetic products tested without



interference from previous treatments, ensuring that the results were attributed to the products under study.

In addition, the exclusion of individuals who have used acne-specific oral antibiotics in the last three months is of paramount importance. Oral antibiotics, such as cyclins, can influence the skin's response to treatment, making their exclusion necessary for an accurate and unbiased analysis of the results.

Finally, the exclusion of participants who have used oral isotretinoin is justified due to the substantial effects of this drug on the skin. Isotretinoin is widely used in the treatment of severe acne and its characteristics may influence the efficacy and safety of the products under review.

In summary, the exclusion criteria established for this study were crucial to ensure the validity and accuracy of the results, as well as the safety of the participants. By excluding individuals with characteristics that could interfere with the results, the research became more reliable and able to provide valuable information about the products and their impact on acne treatment

2.3 RISKS

There is a likelihood of developing facial hyperchromia if the researchers' guidelines are not followed. The likelihood of developing facial hyperchromia is kept to a minimum when participants strictly follow the researchers' guidelines, which include the daily use of sunscreen with at least a sun protection factor (SPF) of 30 and a damage protection standard (PDD) of 10.

2.4 BENEFITS

Acne vulgaris is widely recognized as the most common dermatosis in the population, affecting individuals of all ages, with a prevalence ranging from 85% to 100% (SANTOS and SILVA, et al, 2020). In addition to its aesthetic manifestation, acne can have more serious implications, including significant emotional impact and the formation of scars (BESSA, BESSA, and MORAES, 2020).

Consequently, both the presence of acne and the possibility of scarring from it can result in social isolation and decreased self-esteem. This highlights the need for therapeutic and educational approaches aimed at preventing the appearance of acne or worsening of its manifestations.

3 DATA ANALYSIS METHODOLOGY

The results of this study were submitted to a qualitative and quantitative analysis. The qualitative analysis involved a comparison of the answers to the questionnaires before and after the cosmetic treatment. In addition, the data from the questionnaires were submitted to a descriptive statistical analysis. This combined approach allowed for a comprehensive and detailed evaluation of



the results, providing both qualitative and quantitative insights into the effects of cosmetic treatment in the context of the research.

4 LITERATURE REVIEW

Acne, a widely disseminated dermatological condition, impacts a significant portion of the population, especially in the age group that spans adolescence and early adulthood (BESSA, BESSA, and MORAES, 2020). Its prevalence reaches a remarkable 85% among people aged between 12 and 24 years (RIBEIRO et al., 2015).

The pathophysiology of acne vulgaris encompasses both ancient and current precepts, notably highlighting the predominant etiological agent, *Cutibacterium acnes* (*C. acnes*), and the underlying inflammatory process. Multiple factors interact synergistically in the unfolding of acne, with four fundamental elements: excess sebaceous secretion, hyperkeratinization of the pilosebaceous follicle, bacterial colonization and the consequent release of inflammatory mediators both inside the follicle and in the adjacent dermis (RIBEIRO et al., 2015).

The classification of acne involves five grades, and in general, grades I and II are treated by aesthetic professionals, while grade III requires medical treatment. Grades IV and V are treated by physicians and do not involve direct intervention by estheticians.

Grade I is known as comedonic acne, which is characterized by the presence of closed and open comedones. In grade II, called papulopustular acne, in addition to comedones, there are papules with or without erythema and pustules, as well as constant seborrhea. In grade III, identified as nodular-cystic acne, there is the presence of comedones, papules with or without erythema, pustules, seborrhea and nodules. Grade IV corresponds to acne conglobata, which includes comedones, papules with or without erythema, pustules, seborrhea, purulent nodules, abscesses, and fistulas, often resulting in substantial scarring. Finally, grade V refers to acne fulminans, being the most severe form, accompanied by systemic symptoms such as fatigue, malaise, myalgias, arthralgia, fever, inflammatory nodules, and hemorrhagic crusts (BESSA, 2022).

Its prevention and control require an attentive and comprehensive approach, reconciling hygiene measures and the alteration of certain aspects of lifestyle.

In line with this premise, some general guidelines can be outlined in order to mitigate the appearance or worsening of acne, as well as to favor skin health. The primacy of the skincare routine encompasses the practice of regular facial hygiene, through morning and night washing, using a delicate soap and lukewarm water. It is important to highlight that it is absolutely necessary to avoid rubbing hard, because this can cause irritation.

In the context of the careful choice of products for dermocosmetics, it is imperative to use non-comedogenic formulations that do not obstruct the cutaneous ostia. In the case of skin prone to dryness,



the application of a light moisturizer is relevant, in order to prevent the physiological response of sebum overproduction, caused by water scarcity.

Another aspect worth mentioning is adequate body hydration, through the consumption of an appropriate amount of water, a key element in promoting healthy skin.

It is important not to touch the face with your hands, especially when they are contaminated, as this helps to prevent the transfer of sebum and bacteria to the skin, preventing the obstruction of the follicles. Therefore, avoiding the manipulation of acne skin lesions is a crucial strategy, since this type of action can trigger inflammatory processes and possibly result in scarring, harming the health and appearance of the skin. It is important to emphasize the importance of skin care education, as the practice of "poking" or "squeezing", the use of home remedies, or the belief in miracle solutions can aggravate acne and increase the risk of sequelae (BESSA, 2022).

From a dietary point of view, diet has a considerable influence on the condition of the skin. Maintaining a balanced diet, abundantly composed of fruits, vegetables and fibre-rich foods, is one of the pillars of prevention. In addition, several other factors can exert a substantial influence on the development of acne, such as the use of medications, foods with a high glycemic index, exposure to iodine, dairy products (BAGATIN et al., 2019; RIBEIRO et al., 2015), amino acid supplementation (RIBEIRO et al., 2015) and smoking (BAGATIN et al., 2019; COAST; VELHO, 2018). Therefore, it is advisable to avoid these foods or take a moderate consumption approach.

Meticulous preservation against the harmful effects of solar radiation is an unavoidable imperative, mediated by the daily application of sunscreen, thus providing a significant attenuation of the harmful effects resulting from sun exposure. In addition, exposure to ultraviolet rays from artifices, such as artificial tanning practices, should be strictly avoided, as it tends to accentuate acne.

With regard to facial and capillary hairiness, appropriate asepis takes on a relevant dimension. Keeping your hair clean and avoiding frequent contact with your face is a valuable precept, as well as careful treatment of your beard, if it is present.

Stress management, which can play a triggering or aggravating role in acne (BAGATIN et al., 2019; COAST; VELHO, 2018), deserves dedicated attention, with the implementation of relaxation techniques and the search for emotional balance.

Last but not least, the essential recommendation is to consult a dermatologist whenever acne persists or becomes severe. Specialists in this area of medicine will be able to prescribe specific topical or oral treatments, adapted to the particular characteristics of each acne condition, thus promoting a personalized approach.

Although the strategies outlined here constitute robust foundations for the prevention and management of acne, it is imperative to understand that the treatment and prevention of this skin condition may vary according to the type and severity of the condition, which is why it is recommended



to seek guidance from a qualified health professional, such as a doctor or esthetician. for the formulation of an appropriate care plan, especially in situations that require a more robust and personalized approach.

5 DISCUSSION

The treatment protocol applied by the researchers in both cohorts of volunteers, i.e., in groups G1 and G2, was uniform and included the use of an anti-acne cosmetic kit for professional use, consisting of a set of six cosmetic products.

The cosmetic products in the professional line have been made based on triterpene extracts and a family of pre- and post-biotics, which enable effective acne control and contribute to the promotion of skin health. The kit consists of a total of six products, including liquid gel soap, drying mask, toner, drying fluid, anti-acne fluid, and soothing sealant mask. These cosmetics have been developed to provide a comprehensive and efficient approach to treating acne and improving skin quality.

The *homecare* line, intended exclusively for the G2 group, consisted of two cosmetic products for home use, with direct guidance from the researchers. These products included a facial body wash and a specific gel for acne-prone skin.

Cosmetics used in the treatment of acne have been developed with a wide range of active ingredients, including Senegalese acacia, betulinic acid, boswellic extracts, salicylic acid, allantoin, rosemary, aloe vera, alpha glucan, alpha-bisabolol, white clay, green clay, oats, cassava carbohydrate, centella asiatica, tea tree cyclodextrins, collagen, calendula extract, witch hazel extract, yeast extract, fucocert, yeast, licorice, zinc PCA, propolis, ursolic acid, *blue light filter*, anti-acne complex, panthenol, arnica extract, and amino acid mix (BEL COL, 2023a; BEL COL, 2023b). Each of these ingredients plays a specific role in treating acne and promoting skin health and quality. They have been chosen based on their properties and benefits to address acne and skincare-related concerns.

The list includes a wide range of ingredients used in the formulation of skin care products. These ingredients perform distinct functions and are often combined in formulas to meet the specific needs of the skin. In this way, these ingredients play fundamental roles, such as antioxidants, moisturizers, anti-inflammatories, healing, cell regeneration promoters, skin barrier strengtheners, astringents, oiliness regulators, pore unblockers, soothing, nourishing, whitening, having antimicrobial properties, pH balance, cleaning agents, anti-aging, firming, wrinkle reducers, collagen production stimulants, protectors against environmental damage, exfoliating, circulation enhancers, providing a light, non-greasy texture, as well as sun protection.

The full list of ingredients can be found in Table 1 for a better understanding of the individual action of each active ingredient. Therefore, it can be seen that in addition to treating the skin with acne,



the cosmetics used in the study also prevent new acne and act by improving the quality of the skin, including aging.

Table 1: List and functions of active ingredients

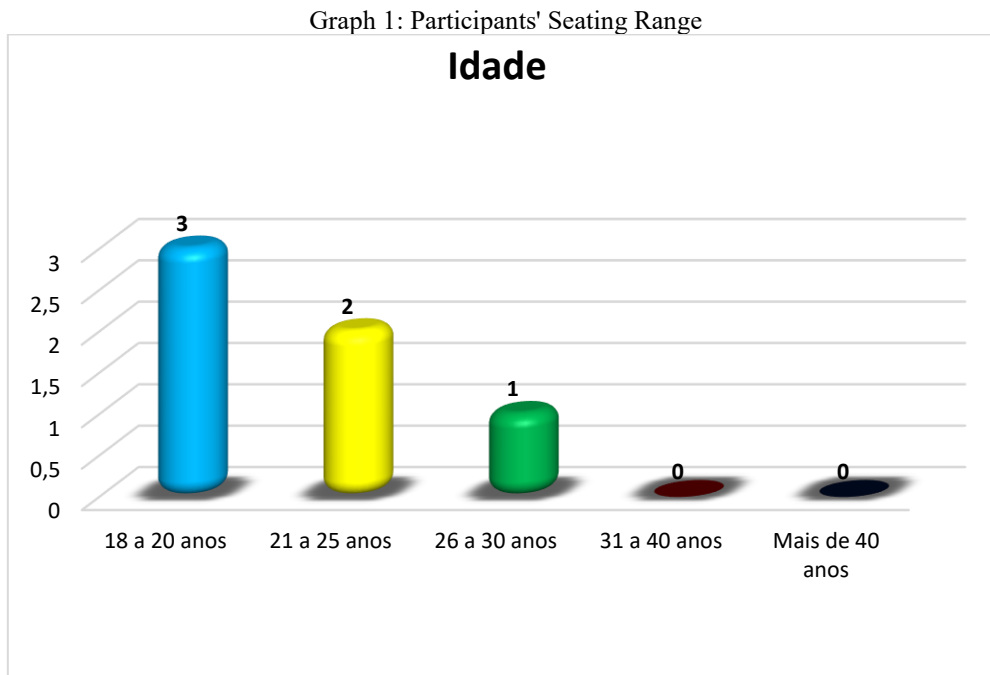
Active principles	Main Functions	Reference
Acacia to senegal	Antioxidant, moisturizing, strengthening the skin barrier, providing a light and non-greasy texture.	MICHALUN; DINARDO, 2016
Betulinic acid	Antioxidant, anti-inflammatory, whitening, anti-aging, healing	REDHEAD, 2012
Boswélíc extracts (boswellic acid)	Antioxidant, anti-inflammatory, soothing, cell regeneration, oil control	MICHALUN; DINARDO, 2016
Salicylic acid	Oiliness control, breakout prevention	MICHALUN; DINARDO, 2016
Allantoin	Anti-inflammatory, healing, cell regeneration, soothing	MICHALUN; DINARDO, 2016
Rosemary	Antioxidant, anti-inflammatory, astringent, cleansing agent	AMARAL, 2015
Aloe vera	Antioxidant, hydration, healing, cell regeneration	MICHALUN; DINARDO, 2016
Alpha glucan	Hydration, skin protection, texture improvement, cell regeneration	MICHALUN; DINARDO, 2016
Alpha-bisabolol	Soothing, anti-irritant, healing, whitening, increases absorption	Ramadan et al., 2022
White clay (kaolin)	Anti-inflammatory, purifying, unclogging pores, brightening, soothing	ZENÓBIA BALDUINO, 2016
Green Clay	Astringent, purifying, exfoliating, healing, improving blood circulation	ZENÓBIA BALDUINO, 2016
Oats	Antioxidant, hydration, anti-inflammatory, soothing, gentle exfoliation	REDHEAD, 2012
Cassava carbohydrate	Antioxidant, hydration, nourishment, soothing, refreshing sensation	REDHEAD, 2012
Centella asiatica	Antioxidant, hydration, anti-inflammatory, healing, cell regeneration, improved blood circulation	REDHEAD, 2012
Melaleuca cyclodextrins	Anti-inflammatory, antimicrobial property, controlled release	ROCHA et al., 2018
Collagen	Hydration, firmness, wrinkle reduction, stimulation of collagen production, protection against environmental damage	MICHALUN; DINARDO, 2016
Calendula Extract	Antioxidant, hydration, anti-inflammatory, healing, antimicrobial property	MICHALUN; DINARDO, 2016
Witch hazel extrato	Antioxidant, anti-inflammatory, astringent, healing, oil control	MICHALUN; DINARDO, 2016
Yeast Extract	Antioxidant, hydration, cell regeneration, increased luminosity, soothing	MICHALUN; DINARDO, 2016
Fucocert	Antioxidant, intense hydration, soothing, reinforcement of the skin barrier, light and non-greasy texture.	MICHALUN; DINARDO, 2016
Yeast	Antioxidant, hydration, cell renewal stimulation, soothing, anti-irritant	MICHALUN; DINARDO, 2016
Licorice	Antioxidant, hydration, anti-inflammatory, brightening, sun protection	MICHALUN; DINARDO, 2016
Zinc PCA	Antioxidant, oil control, antimicrobial property, soothing, soothing, pH balancing	MICHALUN; DINARDO, 2016
Propolis	Antioxidant, hydration, anti-inflammatory, antimicrobial property, healing and cell regeneration, nutrition	MICHALUN; DINARDO, 2016
Ursolic acid	Antioxidant, anti-inflammatory, collagen stimulation, UV damage protection, antimicrobial property	MICHALUN; DINARDO, 2016
Blue light filter (capuchinha)	Powerful antioxidant	RONCHETI, 2018
Complexo antiacne	Acne Treatment and Prevention	MICHALUN; DINARDO, 2016
Pantenol	Hydration, cell regeneration, soothing	MICHALUN; DINARDO, 2016



Extrato de arnica	Antioxidant, anti-inflammatory, analgesic, improved blood circulation, healing	MICHALUN; DINARDO, 2016
Amino Acid Mix	Hydration, nourishment, skin repair, protection against environmental damage	REDHEAD, 2012

Source: The authors themselves, 2023.

A total of 6 volunteers participated in the study, 3 of whom were assigned to the G1 group and 3 to the G2 group. Graph 1 shows that 50% of the volunteers are between 18 and 20 years old, and no volunteer is older than 31 years old.



Source: The authors themselves, 2023.

The median age of people in this group is 22 years, with a standard deviation of ages of approximately 4.65 years. The standard deviation is a measure that indicates how far ages depart, on average, from the average of 22 years. The higher the standard deviation, the greater the dispersion of ages in relation to the mean. In this case, a standard deviation of 4.65 years suggests that the participants' ages have considerable variation from the mean age of 22 years.

As for the gender of the study volunteers, it was observed that approximately 83.33% were women, while 16.67% were men.



Graph 2: Gender of participants



Source: The authors themselves, 2023.

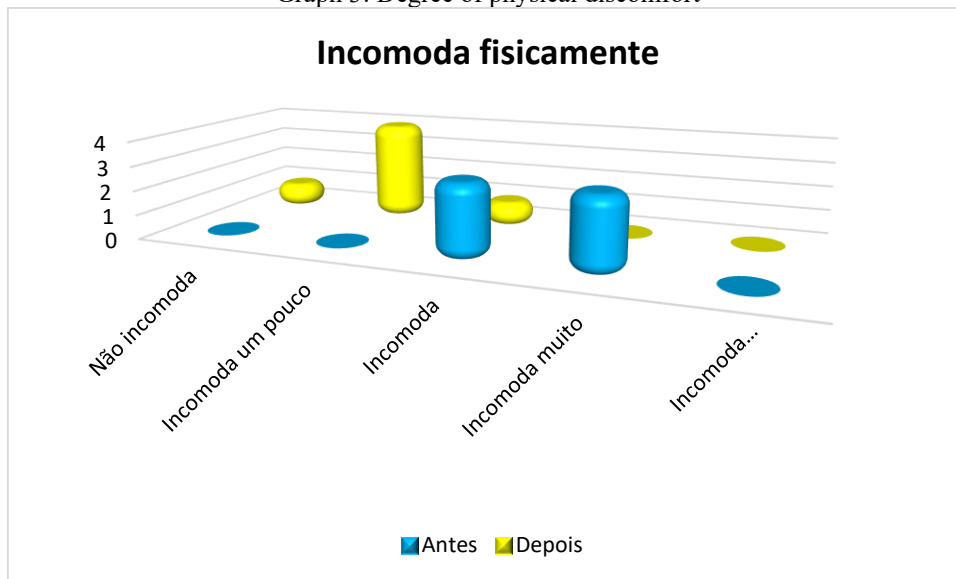
To analyze the other questions of the study, descriptive statistics was used, an analytical tool that summarizes and describes a set of data in a concise way, facilitating the understanding of the central characteristics and variability in the data. This approach is particularly useful when comparing a study with data before and after an intervention, as it helps to assess changes in values and determine whether the intervention had a significant impact.

When participants were asked how much acne bothers them physically at this time, the following was observed: before the intervention, the mean was 2, the median was 3, and the standard deviation was 1.41; After the intervention, the results indicated a mean of 1.25, a median of 1 and a standard deviation of 1.5.

These statistics provide an overview of changes in responses before and after the intervention, as illustrated in Chart 3. They indicate that, on average, the level of physical discomfort decreased after the intervention, as reflected in the lower average after the intervention. However, the variability of responses after the intervention is greater, as indicated by the larger standard deviation, suggesting that some people experienced a significant decrease in discomfort, while others experienced a smaller change or even an increase.



Graph 3: Degree of physical discomfort

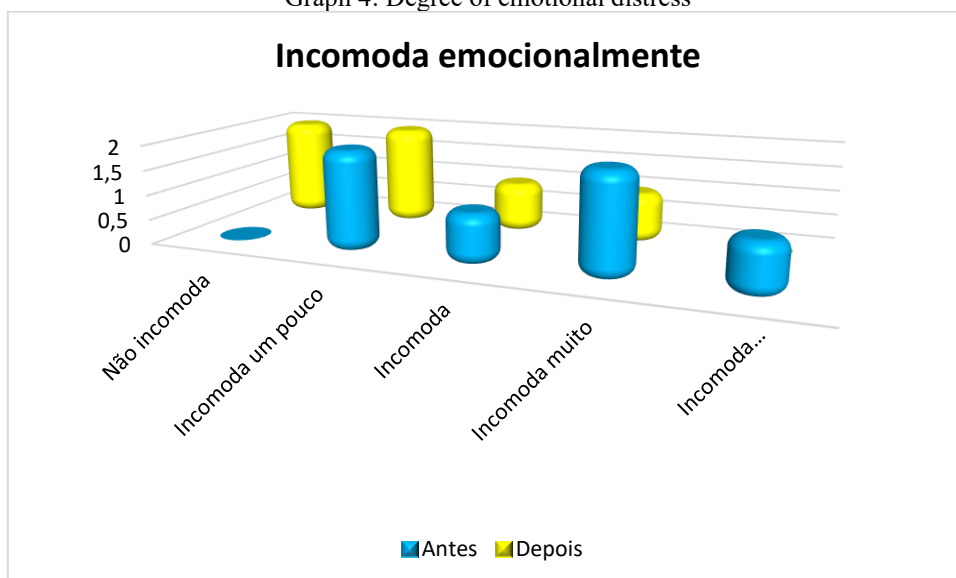


Source: The authors, 2023.

Regarding how much acne bothers you emotionally at this time, the results before were as follows: mean of 1.4, median of 2 and standard deviation of 0.875. After the intervention, the results were: mean of 0.9, median of 1 and standard deviation of 0.7.

The results suggest that the intervention had a positive impact on how people feel emotionally about acne, with a reduction in the mean and variability of responses indicating a lower level of emotional distress, as illustrated in Graph 4.

Graph 4: Degree of emotional distress

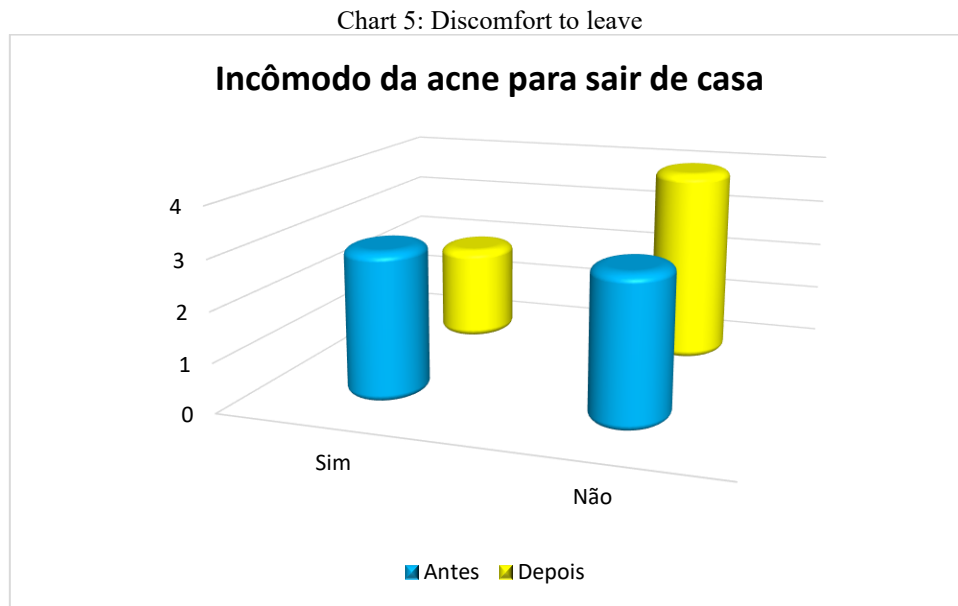


Source: The authors, 2023.

When asked if acne (blackheads and pimples) had ever influenced their decision to go out (whether to parties, school, mall, or another location), data analysis reveals that prior to the



intervention, an equal split occurred in the responses. Half of the people said they stopped going out because of acne, while the other half said it didn't stop them from going out, as shown in Graph 5.



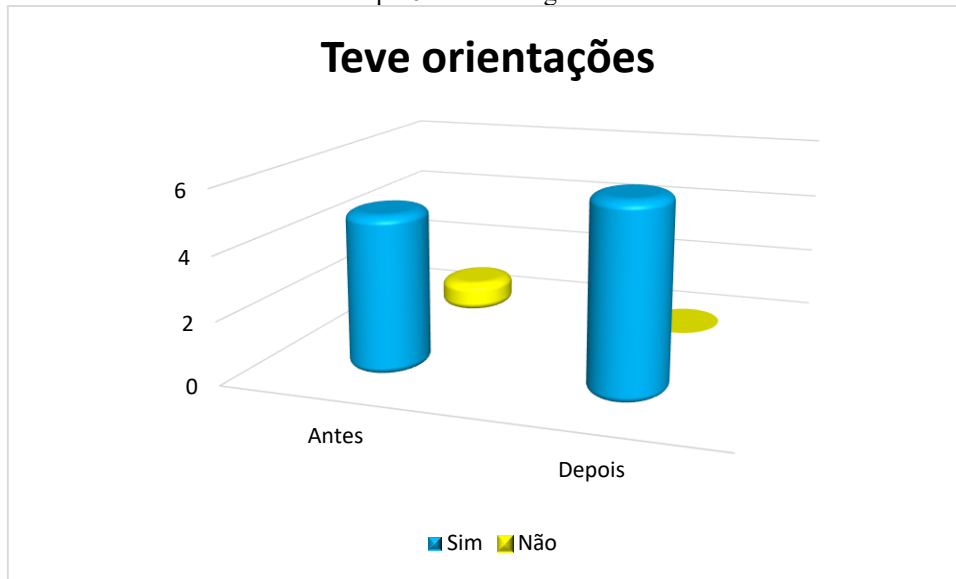
Source: The authors, 2023.

After the intervention, there was a significant change, with a decrease in the proportion of "Yes" responses (33%) and an increase in the proportion of "No" responses (66.7%). This change suggests that the intervention had a positive impact, leading to a reduction in the feeling of discomfort about leaving the house due to acne for most people. This can be considered a promising outcome of the intervention.

When asked if they had already received guidance on how to take care of acne skin (blackheads and pimples), the data indicate that before the intervention, most people had already received guidance (83.3%), while a minority (16.7%) had not received guidance, according to Graph 6.



Graph 6: Had acne guidance

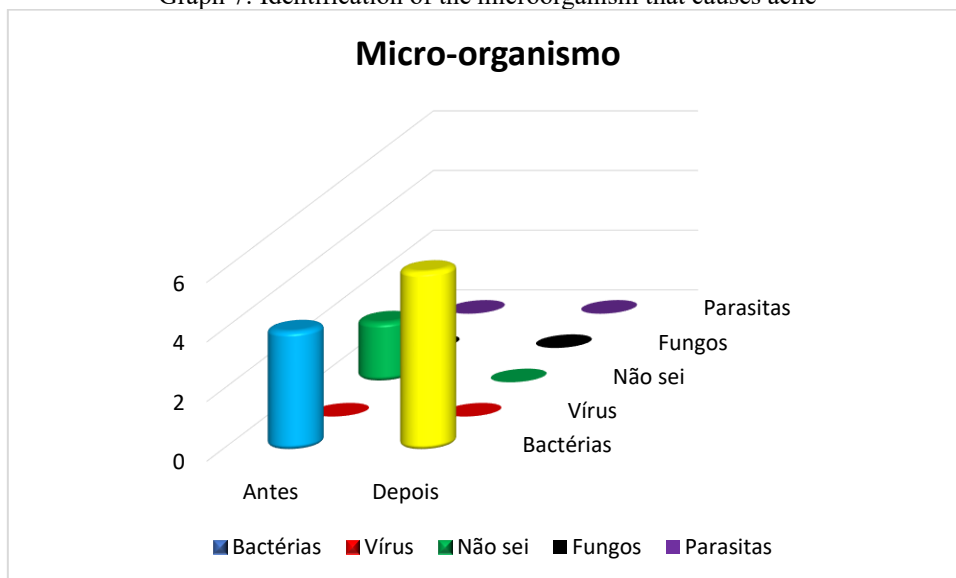


Source: T The authors, 2023.

After the intervention, all people reported receiving guidance for acne skin care, indicating that the intervention was effective in increasing access to these guidance.

As for the question whether the person knows which microorganism is involved in acne (blackheads and pimples), the answer before the intervention was that 67% said it was bacteria, while 33% did not know what the microorganism was. However, after the intervention, 100% correctly stated that they were bacteria, as shown in Graph 7.

Graph 7: Identification of the microorganism that causes acne



Source: The authors, 2023.



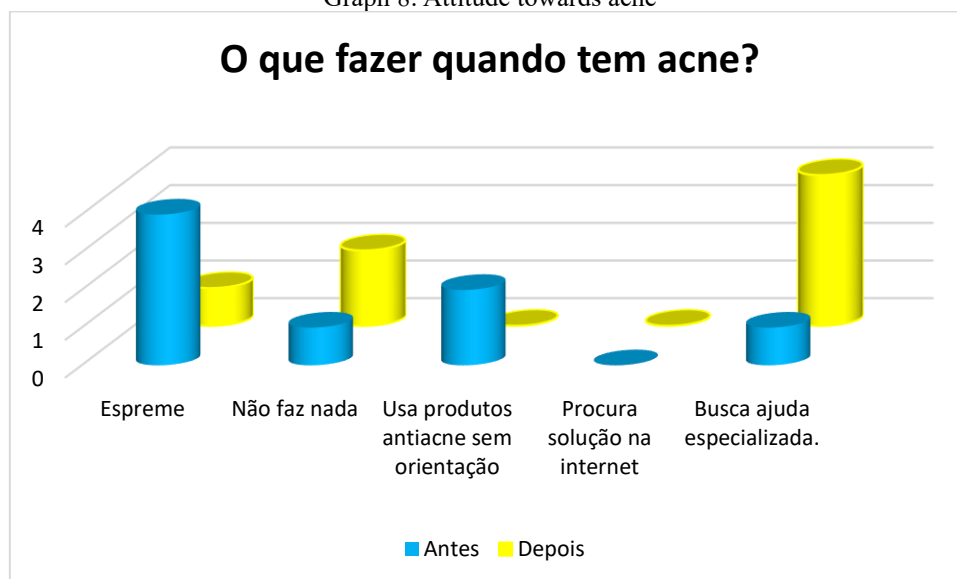
After the intervention, this knowledge was reinforced, with an increase in the number of responses that identified bacteria as the microorganism related to acne. The intervention appears to have been effective in improving participants' understanding of the cause of acne.

In the question "What do you do when you have acne (blackheads and pimples)?", the person was allowed to check more than one option among them: squeeze, do nothing, use anti-acne products without guidance, look for a solution on the internet and seek specialized help.

Before acne treatment, the average response was 0.875, meaning that, on average, people were more likely to "squeeze pimples" or "use anti-acne products without guidance." The median was 1, which indicates that most of the responses were concentrated in the option "squeezes" and "uses anti-acne products without guidance". The standard deviation was approximately 1.039, which is a measure of dispersion relative to the mean.

After acne treatment, the average response increased to 1.43, which indicates that, on average, people began to seek more specialized help after treatment. The median was 2, showing that most of the answers were concentrated in the option "seek specialized help". The standard deviation increased to approximately 1.53, indicating a greater dispersion relative to the mean after treatment.

Graph 8: Attitude towards acne

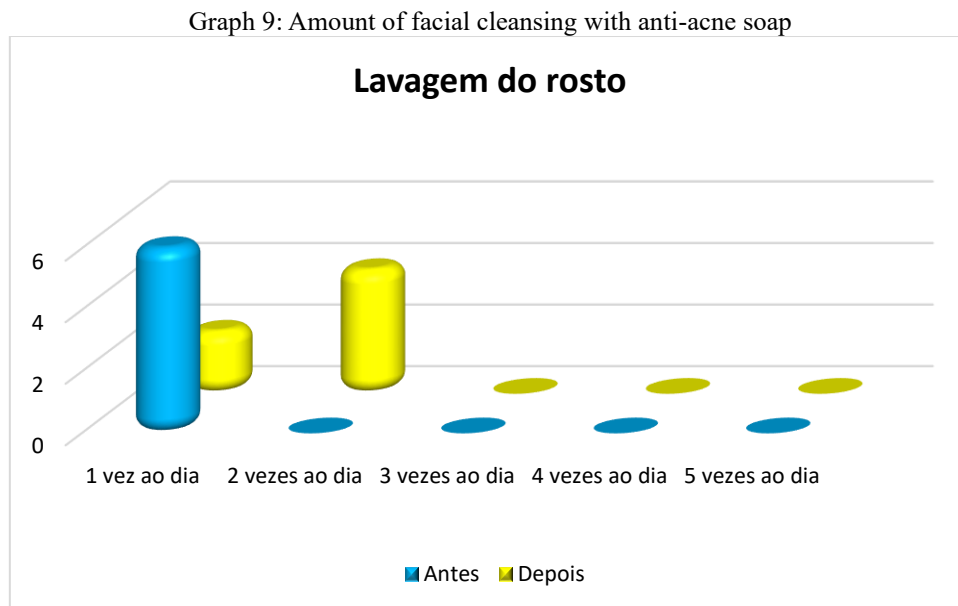


Source: The authors, 2023.

The results indicate that after acne treatment, there was a change in people's behavior, with more of them seeking expert help rather than "squeezing pimples," according to Graph 8. It increased variability in responses, suggesting a wider range of approaches after treatment. The higher standard deviation after treatment indicates that responses were more dispersed relative to the mean, which may be a reflection of people's different experiences after acne treatment.



Regarding the question about how many times the person who has acne should wash their face with anti-acne soap a day, before the intervention, all of them stated that it would be 1 time a day. After the intervention, there were 2 people stating that it would be 1 time a day and 4 that it would be 2 times a day, and none indicated 3, 4 or 5 times a day, according to Graph 9.



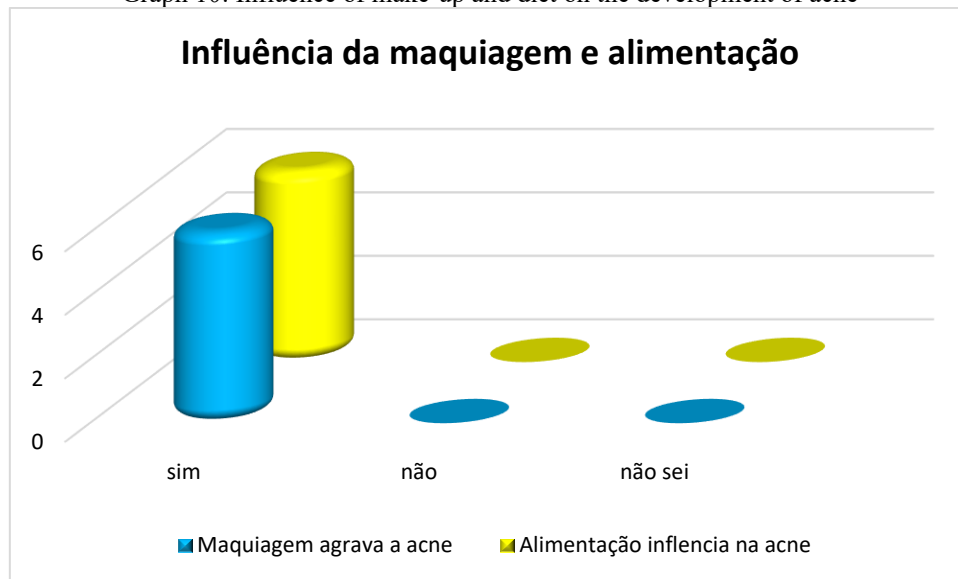
Source: The authors, 2023.

It is important to note that, generally, the frequency of cleaning the face with anti-acne soap can vary from person to person, depending on medical and aesthetic recommendations, the type of product used, and the individual skin's response to the treatment. However, in general, the guideline is to wash the face 1 or 2 times a day. Therefore, before and after the study intervention, the responses are coherent.

Regarding the questions "Do you believe that makeup for beautification can harm skin with acne (blackheads and pimples)?" and "Can diet influence the development of acne (blackheads and pimples)?", there was no variation in the answers before and after the intervention. This is because, in both questions, all people affirmed yes, as shown in Graph 10.



Graph 10: Influence of make-up and diet on the development of acne



Source: The authors, 2023.

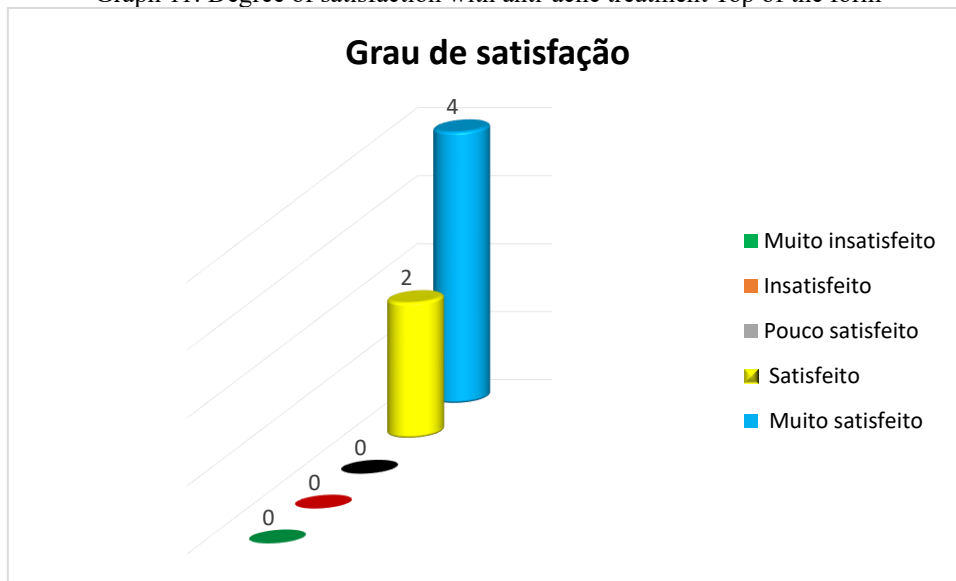
After the conclusion of the sessions, the degree of satisfaction of the people in relation to the procedures performed and the results obtained was evaluated. The results of this evaluation revealed a clear trend of satisfaction among the study participants.

In this case, the majority of people expressed a high degree of satisfaction, with 66.67% rating themselves as "very satisfied," while 33.33% indicated they were "satisfied." There was no one in the "very dissatisfied/dissatisfied/not very satisfied" category. This suggests that the procedures and results were generally well received by the participants, with considerable satisfaction.

These results are indicative that the intervention or treatment was perceived positively by the participants, reaching a high level of satisfaction and suggesting the effectiveness of the procedures performed. Importantly, participant satisfaction plays a crucial role in assessing the quality and effectiveness of any intervention or treatment.



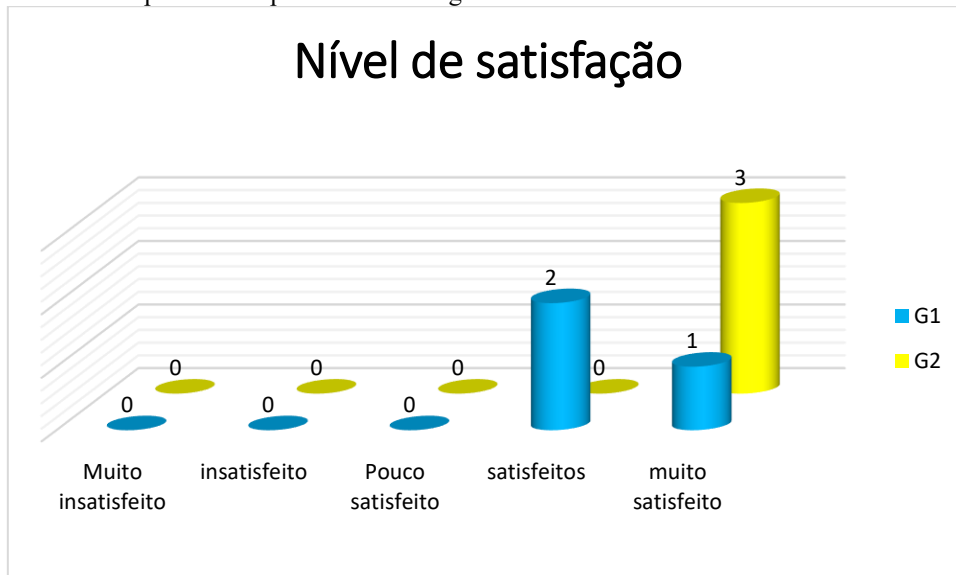
Graph 11: Degree of satisfaction with anti-acne treatment Top of the form



Source: The authors, 2023.

Regarding the outcomes of acne treatment in volunteers submitted to cabin therapy, as opposed to those who not only benefited from the on-site treatment, but also incorporated home care products, there is indisputable evidence that the second group (G2) was more content. This discrepancy in satisfaction between the groups is latent and undeniable, as shown in Graph 12.

Graph 12: Comparison of the degree of satisfaction between G1 and G2



Source: The authors, 2023.

In Group G1, which received exclusively the treatment in the cabin, it was observed that 66.7% of the participants expressed satisfaction, while 33.3% showed a high degree of satisfaction. On the other hand, in Group G2, in which the individuals were submitted to the treatment in the cabin together with a cosmetic kit for *homecare* aimed at the treatment of acne, all participants reported a high degree



of satisfaction, thus reaching the fullness of 100% of great satisfaction. This suggests that the inclusion of a *homecare* regimen may be a more effective approach to treating acne.

6 FINAL THOUGHTS

The primary scope of this research was to investigate the benefits that cosmetic and educational practices provide to the skin of acne patients. To achieve this goal, secondary objectives were outlined, which included the comparison between in-cabin treatments and in-cabin treatments with *homecare*, the description of guidelines on acne and skin care, as well as the analysis of the socio-emotional impact caused by acne.

This study stands out for its inherent merit in raising community awareness about the essential measures for the management of acne-prone skin, aiming at the prevention of diseases and the attenuation of the related psychoemotional and aesthetic effects. In addition, it sought to bring together a therapeutic program that proves to be effective in improving the quality of life, self-esteem and facial aesthetics of individuals affected by this dermatosis.

This survey, carried out under the paradigm of a case study, took place in the facilities of the Aesthetics and Cosmetics Laboratory of a renowned higher education institution and was based on a comprehensive literature review, covering both Portuguese and English sources. The volunteers underwent assessments, including questionnaires, and were divided into two groups: one that received treatment in a cabin and another that also received a treatment kit for use in *homecare*.

The findings revealed that the treatment exerted a positive effect on the perception of the physical and emotional difficulties associated with acne. Prior to the intervention, acne was a deciding factor for half of the participants in their decision to leave the house, while the other half did not feel impacted in this regard. After the application of the treatment, a significant reduction was observed in the proportion of those who stopped going out due to acne, signaling a beneficial influence of the treatment.

The research also highlights the importance of education and guidance about acne and skincare. Before the intervention, most participants had already received guidance, and after treatment, all reported having received it. In addition, there has been a significant increase in knowledge about the microorganism involved in acne.

When it comes to people's behaviour towards acne, there was a shift after treatment, with more participants seeking specialist help rather than trying to tackle the problem on their own. The frequency of washing the face with anti-acne soap remained consistent, indicating that the guidelines provided were followed.



However, beliefs about the impact of makeup and diet on acne did not vary significantly before and after treatment, with the majority of participants agreeing that these factors can influence skin condition.

Finally, the satisfaction assessment revealed that 100% of the group that received treatment in the cabin *and homecare* was very satisfied with the procedures and treatment results. On the other hand, the group that had only treatment in the cabin was satisfied. This suggests that both approaches were effective in treating acne, with emphasis on in-cabin treatment and *homecare*.

Therefore, this study provides *valuable insights* into the effectiveness of acne treatments, contributing to improving the self-esteem of those affected by this dermatological condition.

Importantly, acne is a common condition that primarily affects teenagers and young adults. To effectively prevent acne, it is crucial to adopt a skincare routine, make use of appropriate products, and maintain a balanced diet. In this context, skincare education plays a key role.



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