

HEALTH LITERACY EDUCATION: CHOOSING AND USING SAFE COSMETICS FOR STUDENTS BANI SALEH VOCATIONAL HIGH SCHOOL, BEKASI, WEST JAVA, INDONESIA

Chilyati Eky Futihat^{1*}, Anisa Rachmita Arianti², Embriana Dinar Pramestyani³, Reza Anindita⁴, Margaretha Evelyn Bada Lewokeda⁵, Ratnayu Anindhita⁶

^{1*,2,3,4,5,6}Department of Pharmacy, Sekolah Tinggi Ilmu Kesehatan (STIKES) Mitra Keluarga, Jawa Barat 17113, Indonesia

^{1*}chilyati.eky@stikesmitrakeluarga.ac.id, ²anisa.rachmita@stikesmitrakeluarga.ac.id

³embriana.dinar@stikesmitrakeluarga.ac.id, ⁴rezaanindita@stikesmitrakeluarga.ac.id

⁵margarethaevelyn6@gmail.com, ⁶ratnayu.anindhita@gmail.com

Abstract: *Illegal cosmetic circulation is still a problem in Indonesia. Therefore, community service activities (CSA) are needed regarding education on how to choose and use safe cosmetics so that they are in line with the targets of SDG 3 (Good Health and Well-being), SDG 4 (Quality Education), and SDG 12 (Responsible Consumption and Production). The purpose of CSA is to provide education and skills to choose and use safe cosmetics in accordance with the Indonesian Food and Drug Authority (Indonesian FDA) [BPOM]. The CSA method used service learning (SL), which included Preparation (coordination, permit management, and scheduling), Action (education and training using lecture and demonstration methods), Assessment and Reflection (administering concept exams in the form of pre-tests and post-tests), and Closure (expressing thanks and appreciation and taking photographs with accompanying teachers and students). Data were analyzed using paired t-tests. The CSA results showed a p-value of 0.000 ($p < 0.05$), indicating that the provision of CSA materials on education and skills for choosing and using safe cosmetics significantly affected the mean pre-test and post-test scores. The CSA concluded that the model combining interactive lectures and practical use of BPOM Mobile had the potential to be an effective strategy for increasing cosmetic safety literacy among adolescents and could be applied more widely as part of health promotion in the school environment.*

Keywords: *Community; Education; Health; Promotion; Training; SDGs.*

Copyright (c) 2026 Chilyati Eky Futihat, et al.

* Corresponding author: Chilyati Eky Futihat

Email Address: chilyati.eky@stikesmitrakeluarga.ac.id (STIKES Mitra Keluarga, Bekasi)

Received: July 17, 2026; Revised: October 1, 2026; Accepted: October 8, 2026; Published: October 15, 2026

INTRODUCTION

Sustainable Development Goals (SDGs) are an initiative program from the United Nations (UN) in 2015 to address global challenges in the fields of health, education, and responsible consumption as an important aspect in improving the quality of life of the community (United Nations, 2025). One of the main pillars in achieving the SDGs is education because it plays a role in increasing people's capacity to understand, evaluate, and apply information in daily life (Alisjahbana & Murniningtyas, 2018). One form of education implementation is to increase health

literacy, especially among adolescents as a group that is shaping long-term health behaviors. The effort is in line with the targets of SDG 3 (Good Health and Well-being), SDG 4 (Quality Education), and SDG 12 (Responsible Consumption and Production)), which emphasizes the importance of good health, quality education, and safe and responsible consumption behaviors (Anindita et al., 2025). In this context, education on how to choose and use safe cosmetics, accompanied by the development of skills to detect product legality through the identification of distribution permits from the Indonesian Food and Drug Authority (Indonesian FDA) [BPOM], is a form of SDGs implementation that contributes to increasing public health literacy, especially among adolescents as a group of cosmetic users who continue to experience an increase. Referring to the SDGs target, especially SDG 3, SDG 4, and SDG 12, real efforts are needed to improve adolescent health literacy through educational activities that are relevant to their needs (Susiyarti et al., 2024; Puspitasari et al., 2026).

One form of implementation is community service (CS) in the form of education on how to smartly choose and use safe cosmetics and develop skills to detect the legality of cosmetics through the identification of distribution permits from BPOM (Pitaloka et al., 2025). This is because the circulation of illegal cosmetics is still a problem that requires serious attention in Indonesia. BPOM reported that by the end of 2024, 235 cosmetic items were found to be illegal and/or to contain harmful ingredients, with an economic value exceeding IDR 8.91 billion. Based on the supervision results, West Java is the region with the largest value of findings, at around IDR 4.59 billion. These findings show that the circulation of cosmetics that do not meet safety requirements remains widespread. Illegal cosmetics have the potential to contain prohibited ingredients as well as ingredients that are restricted in use, such as mercury, hydroquinone, retinoic acid, and certain corticosteroids. The use of these cosmetics can cause various adverse effects, ranging from skin irritation, contact dermatitis, and hyperpigmentation to more serious health problems if used continuously. Therefore, every cosmetic product in circulation must meet the requirements for safety, usefulness, and quality, and have a distribution permit number in accordance with the provisions of BPOM before being marketed to the public (Putri & Suminar, 2026).

These community service activities (CSA) were carried out at SMK Bani Saleh, Bekasi City, based on the results of discussions and needs analysis with the school. The results of the discussion with the principal showed that education on safe cosmetics is an urgent need because most students, especially female students, have become active users of various cosmetic and skin care products, yet still have limited knowledge of how to distinguish safe products from illegal ones or those containing harmful ingredients. In addition, the high intensity of social media and online commerce use exposes students to cosmetic promotions without adequate skills to evaluate the

safety and legality of products. These conditions increase the risk of using cosmetics that do not meet safety requirements, so educational interventions are needed that not only increase knowledge but also equip students with practical skills in verify the legality of cosmetic products through the BPOM information system.

This CSA aims to increase the knowledge and health literacy of students at SMK Bani Saleh, Bekasi City, regarding how to choose cosmetics safely in accordance with applicable regulations. In addition, this activity aims to develop students' skills in assessing the legality of cosmetics by checking distribution license numbers and product information in the BPOM system, so that participants can distinguish cosmetics that meet safety requirements from products that are potentially illegal or do not meet standards. The success of CSA can be seen in increased participants' knowledge of how in independently choose and verify the legality of cosmetics.

METODE PENELITIAN

This Community Service Activity (CSA) will be held on June 18, 2026, at SMK Bani Saleh, Bekasi City. The implementation of this CSA applies *the Service-Learning* (SL) method, which integrates academic goals with the fulfillment of the partner community's real needs. Based on the conceptual framework of SL, the stages of service are organized into four phases: preparation, action, evaluation, and *closure* (Fernández-Martín & Ayllón-Salas, 2026).

Preparation Stage

The initial stage involved coordination, permit management, and scheduling with SMK Bani Saleh in Bekasi City. Furthermore, the team compiled educational media in the form of *flyers* that explain how to choose safe cosmetics and provide guidelines for using the BPOM *Mobile application*. Before the activity started, participants were asked to bring their personal cellphones, download the BPOM Mobile application, and bring cosmetic samples.

Action Stage

The action stage is carried out in two sessions, namely education and training. The educational session was filled with interactive presentations and the distribution of *flyers* about the characteristics of safe cosmetics. The second session was hands-on training. In this session, students use their mobile phones to open the BPOM Mobile application to scan and verify the legality of cosmetic samples.

Evaluation and Reflection Stage

The Evaluation Stage is conducted to assess participants' knowledge. Before the education session begins, participants do a pre-test to measure their initial ability. After the training session, participants complete a post-test. The results of this post-test are used to assess the success of the education and training provided. Indicators of knowledge improvement are assessed using concept questions (pre and post-tests) in multiple-choice format, totaling 15 questions. The indicator of concept questions can be seen in Table 1

Table 1. Indicators of assessment of concept questions (pre and post-test)

No	Aspects assessed Concept	Score	
		True (1)	False (0)
1	Definition of cosmetics		
2	Criteria for harmful and harmless cosmetic advertising		
3	Harmful effects of cosmetic dyes		
4	Alpha Hydroxy Acid (AHA) Content in Cosmetic Products		
5	Various forms of cosmetic preparations		
6	Principles of skincare use on the skin		
7	Dagusibu Stage		
8	Principles and explanations of Dagusibu		
9	The Importance of DAGUSIBU (Get, Use, Store, and Dispose)		
10	Characteristics of expired cosmetics		
11	Stage of action of DAGUSIBU		
12	Explanation of Cosmetic KLIK Check on the BPOM application		
13	Types of sunscreens for sensitive skin		
14	Types of skin for cosmetic selection		
15	Morning and evening skincare use		

Participants took the test independently using their own mobile phones via a Google Form link provided by the organizing team. The pre-test was administered before the material was presented, while the post-test was conducted after all educational content and practical activities were completed. The assessment instrument consisted of multiple-choice questions, each with four answer options. The material covered four key aspects: (1) knowledge regarding safe cosmetics and the identification of hazardous ingredients, such as mercury, hydroquinone, and banned colorants; (2) the DAGUSIBU principles for cosmetics, covering how to obtain, use, store, and dispose of cosmetic products; (3) the proper selection and use of skincare, including suitability for skin type, the skincare application sequence, sunscreen usage, and skin barrier maintenance; and (4)

knowledge on verifying cosmetic legality using the BPOM Mobile application based on the "Cek KLIK" principles. Each correct answer was awarded 1 point, and each incorrect answer received 0 points. The total score was then converted into a numerical grade on a scale of 0–100. Finally, the pre-test and post-test scores were compared to assess changes in participants' knowledge following the educational activity.

Closure Stage

The activity ended with an official closing session with school representatives. The implementation team expressed gratitude and appreciation to the accompanying teachers and students. The series of events concluded with a group photo session among the implementation team, participants, and school teachers.

Data analysis

The data from the activity were analyzed using a quantitative descriptive approach to assess students' knowledge levels. The data is presented in a table to provide basic knowledge for selecting and detecting safe cosmetics. In addition, a paired t-test was conducted to determine the significant difference between the pre-test and post-test values before and after the administration of the material at a confidence level of 95% ($\alpha = 0.05$)

RESULTS AND DISCUSSION

Based on the results of the Community Service Activity (CSA) at the students' pharmacy at Bani Saleh Vocational School in Bekasi City, 58 students participated in the CSA. The number and percentage of participants who participated in this CSA can be seen in Table 1

Table 1. Number and percentage of students in the Pharmacy SMK Bani Saleh, Bekasi

Gender	Total	Percentage
Female	42	72.41 %
Male	16	27.59 %
Total	58	100 %

Based on Table 1, the number of students for classes X and XI pharmacy was 42 (72.41%) female students and 16 (27.59%) male students. This condition is in line with the general characteristics of pharmaceutical education, where the proportion of women is consistently higher than that of men in pharmacy and health education. Studies on pharmacy education show that

female students make up around 74.4% of pharmacy students and are projected to reach 86% of pharmacists in Indonesia. Hence, the dominance of women in pharmacy education programs is a common phenomenon (Alfian et al., 2023). The dominance of female participants in this activity is also in accordance with the main target group of cosmetic education, considering that women have a higher tendency to use cosmetic and skincare products as part of skin care and maintain health and appearance (Khaerunisa & Husain, 2025). A 2001 American Association of Retired Persons (AARP) survey, cited by Hilmi et al. (2022), shows that women use various skin care products more regularly than men, making them more often exposed to information and cosmetic promotions on social media. Therefore, the composition of participants, in which female students dominate, is in accordance with the educational target regarding smart strategies for choosing safe cosmetics, because this group is a more active cosmetic user and has a greater risk of being exposed to products that do not meet safety requirements if they do not have adequate knowledge.

Participants were then gathered in the hall of SMK Bakti Kartini to receive material on Smart Choosing and Using Safe Cosmetics; Get, Use, Store, and Dispose (Dagusibu) Cosmetics; and Skincare. CSA participants are pretested before receiving the material to assess students' knowledge of smart choices and use of cosmetics and skincare. The atmosphere of participants' interactions with the speaker is shown in Figure 1.



Figure 1. Presentation at the Bani Saleh Vocational School Hall, Bekasi

Based on Figure 1, the topic was delivered alternately using lecture and demonstration methods by Mrs. apt. Chilyati Eky, M.Farm., Mrs. apt. Anisa Rachmita Arianti, M.Farm., and Mrs.

apt. Embriana Dinar Pramestyani, M.Farm. The first topic, "Smart Ways to Choose and Use Safe Cosmetics," was delivered by Mrs. apt. Chilyati Eky, M.Farm., as a lecturer in the field of clinical pharmacy, discussed Anatomy of Cosmetics (Definition and Purpose), Diagnostic Matrix (cosmetics versus drugs), forms of cosmetic preparations, regulation of online transactions (3 red flags of E-commerce), and Strategies for buying cosmetics smartly. Cosmetics are defined as preparations that are applied to the outside of the human body, such as the skin, hair, nails, lips, teeth, and mucosa of the oral cavity, for the purpose of cleaning, fragrance, changing the appearance, protecting, or maintaining the body to remain in good condition, so that it is not intended to diagnose, treat, or cure diseases as the function of drugs (Daswi, 2025). Therefore, students are given an understanding of a simple diagnostic matrix to distinguish cosmetics and drugs based on their intended use, product claims, and working mechanisms, so that they can recognize that therapeutic claims, such as curing acne, eliminating infections, or treating eczema are characteristic drugs that require strict medical supervision, not cosmetics that only function to maintain cleanliness, aesthetics, and superficial protection in a way that Applied, sprinkled, and sprayed (EUIPO, 2024; Vendruscolo et al., 2025). In addition, participants were introduced to various cosmetic preparations, including creams, lotions, gels, serums, powders, soaps, shampoos, masks, aerosols, and lipsticks, so they could choose products according to their needs and learn how to use them (Du et al., 2024). Given the high trend of buying cosmetics through digital platforms, the educational materials also emphasize vigilance of three indicators (red flags) when transacting online, namely red flag-1 (skin preparations containing Alpha Hydroxy Acid (AHA) with $> 10\%$ level, Red Flag-2 (teeth whitening preparations that contain/release Hydrogen Peroxide with $> 6\%$ level), Red Flag-3 (Medical cosmetics or any products that must be applied by medical personnel as instructed) (Couteau & Coiffard, 2016; Tejasswini, 2019; Sujani et al., 2021; Supardi & Hutabarat, 2025). As an effort to form responsible consumption behavior, students are equipped with strategies to buy cosmetics intelligently through the application of the principles of checking the legality of products at BPOM, reading labels and compositions, paying attention to expiration dates, buying products from official sellers, and not being easily influenced by promotions or prices that are too cheap (Wibowo et al., 2024). The topics are expected to improve health literacy and students' skills in evaluating the safety and legality of cosmetics before deciding to buy or use them (Tikirik et al., 2023).

The second topic about "DAGUSIBU Cosmetics" was delivered by Mrs. apt. Anisa Rachmita Arianti, M.Farm., discussed various harmful ingredients in cosmetics, their impact on health, and the application of DAGUSIBU principles as an effort to use cosmetics that are safe

and responsible (Ainurofiq et al., 2026). The topic begins with an introduction to several harmful ingredients still found in illegal cosmetics, such as mercury, hydroquinone, and harmful dyes. Mercury is often added to whitening creams because it provides a quick brightening effect. Still, it can cause skin irritation, hyperpigmentation, kidney damage, nervous system disorders, and can be toxic if used long-term (Bastiansz et al., 2022). Hydroquinone, when used unsupervised and at levels exceeding the permissible limit, may trigger irritation, contact dermatitis, and exogenous ochronosis, characterized by permanent darkening of the skin (Megasari et al., 2022). BPOM has determined that hydroquinone concentrations exceeding 2% should be used only under medical supervision and that its use in over-the-counter cosmetic products is strictly prohibited (Handayani et al., 2025). In addition, the use of harmful dyes that are not intended for cosmetics, such as Rhodamine B, Pigment Red 53, and Sudan III, has the potential to cause irritation, allergic reactions, and increase the risk of health problems if exposed continuously (Rahmasari et al., 2022; Fikri & Firmansyah, 2023; Christina & Pitarisa, 2024; Munthe et al., 2025; Amitava & Khan, 2025). Furthermore, the concept of DAGUSIBU Cosmetics is explained as a comprehensive framework in cosmetics management that includes the process of obtaining, using, storing, and disposing of cosmetics correctly to ensure the safety, quality, and benefits of products for consumers. The principle of Da (Get) emphasizes obtaining cosmetics from official stores or distributors and ensuring that products have a BPOM distribution permit number. The Gu (Use) principle teaches the use of cosmetics according to skin types, whether normal, dry, oily, or sensitive, so that it can minimize the risk of irritation, acne, and redness. At this stage, the zero-sharing rule was also introduced: do not share personal cosmetics such as lipstick, cushions, mascara, or applicators, as they can be a medium for the transfer of bacteria, fungi, and other microorganisms that cause skin and eye infections. Furthermore, the Si (Save) principle explains that cosmetics must be stored at room temperature, avoid direct sunlight, in tightly closed containers, and in a dry place to maintain the stability and effectiveness of their active ingredients. Finally, the Bu (Buang) principle emphasizes the importance of stopping the use and discarding of cosmetics if they have passed the expiration date or show signs of damage, such as discoloration of the cream, clotting serum, melted lipstick, emulsion separated into two layers, rancid odor appears, or when its use causes itching, heat, or redness, because these conditions indicate that the quality and safety of the product are no longer guaranteed.

The third topic “Skincare” was delivered by Mrs. Apt. Embriana Dinar Pramestyani, M.Farm., who emphasized the importance of digital literacy and scientific understanding in choosing and using skin care products. The material began with a discussion of the vicious circle of Fear of Missing Out (FOMO) in the digital beauty trend, which is a phenomenon when the

virality of influencer content, unrealistic expectations of results, and exposure to social media algorithms encourage impulsive cosmetic purchases without considering the safety and effectiveness aspects of the product. Studies have shown that the higher the intensity of exposure to beauty product promotions on social media, the greater the tendency of consumers, especially adolescents and young adults, to make impulse purchases influenced by fear of being left behind (FOMO) rather than scientific considerations regarding product safety (Regina et al., 2026; Fauziah et al., 2025). Furthermore, it explains the anatomy of toxic skincare: various products that promise instant whitening or glowing skin through harmful ingredients or ingredients that do not meet the required standards. This condition is related to the overclaim epidemic, which refers to the gap between marketing claims and scientific evidence (Tantra, 2025). For example, active ingredients such as niacinamide and retinol have scientific evidence supporting improvements in skin barrier function, reductions in hyperpigmentation, and promotion of cell regeneration. Still, these benefits are only obtained at the right concentration, consistent use, and over a period of weeks to months, not instantly (Oh et al., 2025). Therefore, participants were given an understanding of the difference between the myth of instant results and the biological reality of the skin, that efforts to acquire white skin in a short time can actually damage melanocytes, disrupt the integrity of the skin barrier, and increase the risk of irritation, post-inflammatory hyperpigmentation, and even conditions resembling panu due to damage to the skin's protective layer (Boo, 2021).

In addition to discussing safety aspects, the material also provides practical guidance on the architecture of morning and evening skincare routines based on dermatology principles. In the morning, the routine begins with the use of a cleanser to remove oil and sweat formed during sleep, followed by acne treatment using active ingredients such as salicylic acid or niacinamide as indicated, the use of lightweight moisturizers containing humectants such as glycerin or hyaluronic acid to maintain skin hydration, and ends with a sunscreen of at least SPF 30 as a mandatory step to protect the skin from exposure to UV-A and UV-B rays which play a role in premature aging, hyperpigmentation, and skin barrier damage. Meanwhile, the nightly routine is recommended to use the double cleansing method to remove the remaining makeup, sunscreen, dust, and pollution, followed by the use of retinoids or exfoliants according to the skin's needs to stimulate cell regeneration, then end with a barrier repair moisturizer that is richer in emollients to help the process of repairing the skin barrier during sleep (Poelheken & van der Bent, 2026). The material also emphasized that the effectiveness of skincare does not only depend on topical products, but must be supported by a healthy lifestyle, such as the consumption of a balanced, nutritious diet, adequate sleep, physical activity, and good stress management, because these factors contribute to

overall skin health (Cliatt & Petrides, 2024).

As an effort to maintain healthy skin, participants were also introduced to the concept of improving the skin barrier through the use of scientifically proven active ingredients, such as ceramides, essential fatty acids, panthenol, Centella asiatica, niacinamide, hyaluronic acid, glycerin, and squalanne, which play a role in maintaining hydration, reducing inflammation, and accelerating the restoration of skin barrier function (O'Connor et al., 2020). On the other hand, for individuals with sensitive skin, several red flags are explained that need to be avoided, including products with high alcohol content, perfumes, synthetic dyes, Sodium Lauryl Sulfate (SLS), the use of high-concentration vitamin A or vitamin C without adaptation, as well as exfoliants such as excessive AHAs because they can trigger irritation and worsen skin barrier damage (Forkel et al., 2026). In closing, the golden rule of skin care was conveyed: always wash your hands before touching your face, choose products suited to your skin type, use cosmetics in the right dosage and frequency, and avoid mixing active ingredients without scientific evidence. The material also introduces the latest developments in the world of cosmetic dermatology, namely the concept of skiminalism and hybrid cosmetics which prioritizes the use of multifunctional products with simpler ingredients, regenerative science approaches to improve the biological function of the skin, and metabolic beauty which emphasizes the relationship between metabolic health of the body and skin health as the direction of the development of the modern cosmetics industry (Pleguezuelos-Beltrán et al., 2024).

After the delivery of the material, the activity continued with training on checking the legality of cosmetics using the BPOM Mobile application, with a demonstration method guided directly by all lecturers and accompanied by students. In this session, participants were directed to download and open the BPOM Mobile application on their mobile phones, then select the Scan QR/Barcode feature. Next, participants scan the QR code or barcode contained in the packaging of cosmetic products they bring or provide in the activity. If the product has a distribution permit and is officially registered with BPOM, the application will display the product name, Marketing Authorization Number (NIE), manufacturer's name, and registration status. On the other hand, if product data is not found, participants are urged to exercise greater vigilance because the product may be an illegal cosmetic, may not be registered, or may use an inappropriate product identity. This training aims to equip participants with practical skills in independently verify the legality of cosmetics, so that they not only understand the concept of cosmetic safety theoretically but also apply it in daily life before deciding to buy or use a product. This approach is in line with the Cek KLIK education program developed by BPOM, namely Packaging, Labels, Distribution Permits, and Expiration, as a preventive measure to protect the public from the circulation of illegal

cosmetics, containing hazardous ingredients, and products that do not meet safety, efficacy, and quality requirements (BPOM RI, 2024). Through direct assistance, participants can practice each stage of checking correctly, so that it is hoped that more critical, intelligent, and responsible behavior will be formed in choosing safe cosmetics.

The activity then continued at the final evaluation stage through concept exams (pre and post-test). This stage not only assesses the cognitive aspect through the understanding of concepts, but also the psychomotor aspect through the ability to perform the procedure correctly, systematically, and independently. The results of the concept test were then analyzed using a quantitative descriptive test to describe the distribution of grades in a table, as well as a paired t-test to determine the difference in achievement before and after training (Noerfitri et al., 2023). The percentages of respondents who answered correctly or incorrectly during the pre and post-tests in the concept exam are shown in Table 3.

Table 3. Concept score education and skills in choosing safe cosmetics (N=58)

No	Aspects assessed Concepts	Pre-test (%)		Post test (%)	
		True	False	True	False
1	Definition of cosmetics	57 (98.4 %)	1 (1.6 %)	57 (98.4 %)	1 (1,6 %)
2	Criteria for harmful and harmless cosmetic advertising	53 (91.8 %)	5 (6.6 %)	56 (96.6 %)	2 (3.4 %)
3	Harmful effects of cosmetic dyes	35 (62.3 %)	23 (37.7 %)	53 (91.4 %)	5 (8.6 %)
4	Alpha Hydroxy Acid (AHA) Content in Cosmetic Products	38 (65.51 %)	20 (34.49 %)	54 (93.1 %)	4 (6.9%)
5	Various forms of cosmetic preparations	40 (68.96 %)	18 (31.04%)	48 (82.8 %)	10 (17.2 %)
6	Principles of skincare use on the skin	39 (67.24 %)	19 (32.76%)	24 (96%)	1 (4%)
7	Dagusibu Stage	30 (51.72 %)	28 (48.28%)	35 (60.30%)	23 (39.65 %)
8	Principles and explanations of Dagusibu	39 (67.24 %)	19 (32.76%)	38 (65.5%)	20 (34.50 %)
9	The Importance of DAGUSIBU	56 (96.55 %)	2 (3.45%)	54 (93.1%)	4 (6.8%)
10	Overclaim cosmetic ads	30 (51.72 %)	28 (48.28%)	44 (75.9%)	14 (24.1 %)
11	Stage of action DAGUSIBU	57 (98.27 %)	1 (1.73%)	57 (98.27 %)	1 (1.73%)
12	Explanation of Cosmetic KLIK Check on the BPOM	11 (18.96%)	47 (81.04%)	51 (87.9%)	7 (12.1%)

No	Aspects assessed Concepts	Pre-test (%)		Post test (%)	
		True	False	True	False
	application				
13	Types of sunscreens for sensitive skin	37 (63.79%)	21 (36.20%)	48 (82.8 %)	10 (17.2 %)
14	Types of skin for cosmetic selection	38 (65.51 %)	20 (34.49 %)	53 (91.4 %)	5 (8.6 %)
15	Morning and evening skincare use	49 (84.48%)	9 (15.52%)	55 (94.8%)	3 (5.2 %)

Based on Table 3, it can be seen that the pre-test questions that were answered by more than 50% of CSA participants were numbers 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 13, 14, and 15, after the topics were given. The post-test was carried out, and it showed that all students were able to answer all questions with a percentage above 50%. The results of the paired t-test score of CSA participants before and after the provision of material can be seen in Table 4.

Table 4. Results of the Paired Sample T-Test: mean pre-test and post-test scores of Pharmacy students of SMK Bani Saleh, Bekasi

Variable	Mean ($\bar{X} \pm$ Standards deviate	p-value
Pre-test	73.33 $\pm$ 2.52	0.000*
Post-test	86.67 $\pm$ 2.30	

* p < 0,001 (significant at α level = 0.05)

Based on the table, the results of the paired t-test show a p-value of 0.000 ($p < 0.05$), or the provision of CSA topics on education and skills on smart ways to choose and use safe cosmetics can have a significant effect on the average pre-test and post-test scores. The closing stage ended with a photo session between the project team, participants, and representatives of the school teachers. The documentation for the closing stage is shown in Figure 2.



Figure 2. Photo of the closing stage of CSA

This CSA has several advantages. First, the target of the activity is in accordance with the program's objectives, namely SMK students in Pharmacy who have a close relationship with the pharmaceutical industry and have the potential to become educational agents in the safe use of cosmetics in the surrounding environment. Second, the implementation of activities is integrated with the New Student Admissions (PMB) series, so that, in addition to increasing literacy about the selection of safe cosmetics, this activity also provides participants with insight into opportunities to continue their education at universities in the health sector. Third, the delivery method is not only in the form of lectures but also combines interactive discussion sessions and practical training using the BPOM Mobile application through the Check KLIK procedure, so that participants gain hands-on experience in verifying the legality of cosmetic products. Fourth, the pretest-posttest evaluation showed that educational activities increased participants' knowledge of safe cosmetics and how to choose products wisely.

The limitation of this CSA is that the implementation is carried out in a single, relatively short meeting, so it has not been able to evaluate the sustainability of changes in participants' behavior in safely choosing and using cosmetics. In addition, the number of participants remains limited to 58 students from a single Pharmacy Vocational School, so the results of the activities cannot be generalized to adolescent groups or the wider community. The output of the activity also still focuses on improving knowledge measured through pretest and posttest, so that in the next activity, it is necessary to evaluate changes in participants' attitudes and behaviors in the long term, for example, through follow-up a few months after education, as well as involving participants from various schools or communities to obtain a wider impact. Therefore, CSA are further recommended to implement a sustainable educational design by involving more schools, longer mentoring durations, and long-term evaluation of changes in knowledge, attitudes, and behaviors in the selection of safe cosmetics so that the effectiveness of the program can be assessed more comprehensively.

CONCLUSION

This CSA uses the Service Learning (SL) method by delivering material on safe cosmetics, hazardous ingredients in cosmetics, the concept of DAGUSIBU, science-based skincare literacy, and training on checking the legality of cosmetics using the BPOM Mobile application through the Check KLIK procedure. The results of the paired t-test showed a significant difference in knowledge before and after the activity ($p < 0.05$), indicating that the education provided was effective in increasing participants' understanding of selecting safe and legal cosmetics. In addition

to increasing knowledge, practical activities provide direct experience to participants in verifying the legality of cosmetic products, so that they are expected to be able to form more critical and wise behavior in choosing products circulating in the community. Overall, an educational model that combines interactive lectures and the practice of using BPOM Mobile has the potential to be an effective strategy in improving cosmetic safety literacy in adolescents and is suitable for wider application as part of health promotion in the school environment. This activity also supports the achievement of SDG 3 (Good Health and Well-being) through increasing awareness of the safe use of cosmetics, SDG 4 (Quality Education) through practice-based learning that improves health literacy, and SDG 12 (Responsible Consumption and Production) by encouraging more responsible consumer behavior in choosing cosmetic products that have met safety and legality requirements.

ACKNOWLEDGMENTS

The author would like to thank Sekolah Tinggi Ilmu Kesehatan Mitra Keluarga Bekasi for providing funding support through Community Service grants in 2026. The author also expressed his gratitude to the Principal of Bani Saleh Bekasi Pharmacy Vocational School for granting permission and support, enabling this community service activity to be carried out properly. In addition, the author appreciates the active participation of students and accompanying teachers who have contributed to the entire series of CSA

REFERENCES

- Ainurofiq, A., Fatimi, A. H., Prabowo, I., Larasati, D. R., Choiri, S., Az Zahro, A. F., Usmarini, F. R., Maharani, V., Fauziah, S., Purbowati, D., Rinaldi, R., & Jauhari, R. F. (2026). Swamedikasi, DAGUSIBU, dan Waspada Bahan Berbahaya Kosmetik: Pengabdian Masyarakat di Dusun Kepuhsari, Surakarta. *Jurnal Abdimas Madani Dan Lestari (JAMALI)*, 08(1), 175–183. <https://doi.org/10.20885/jamali.vol8.iss1.art18>
- Alfian, S. D., Khoiry, Q. A., Andhika A. Pratama, M., Pradipta, I. S., Kristina, S. A., Zairina, E., Hak, E., & Abdulah, R. (2023). Knowledge, perception, and willingness to provide telepharmacy services among pharmacy students: a multicenter cross-sectional study in Indonesia. *BMC Medical Education*, 23(1). <https://doi.org/10.1186/s12909-023-04790-4>
- Alisjahbana, A. Salsiah, & Murniningtyas, Endah. (2018). *Tujuan pembangunan berkelanjutan di Indonesia : konsep, target, dan strategi implementasi*. Unpad Press.
- Amitava, K., & Khan, Dr. A. (2025). A Systematic Review of the Toxicological Effects of Rhodamine-B. *International Journal of Pharmaceutical Sciences Review and Research*, 85(11), 74–82. <https://doi.org/10.47583/ijpsrr.2025.v85i11.012>
- Anindita, R., Nathalia, D. D., Beandrade, M. U., & Putri, I. K. (2025). Microscope On The Usage Training As A Form For Achieving SDGs for High School Students In Indonesia. *As-Sidanah : Jurnal Pengabdian Masyarakat*, 7(2), 435–454.

<https://doi.org/10.35316/assidanah.v7i2.435-454>

- Bastiansz, A., Ewald, J., Saldaña, V. R., Santa-Rios, A., & Basu, N. (2022). A Systematic Review of Mercury Exposures from Skin-Lightening Products. *Environmental Health Perspectives*, 130(11), 1–11. <https://doi.org/10.1289/EHP10808>
- Badan Pengawas Obat dan Makanan Republik Indonesia (BPOM RI). 2024. *Pedoman Cek KLIK dan Penggunaan Aplikasi BPOM Mobile*.
- Boo, Y. C. (2021). Mechanistic basis and clinical evidence for the applications of nicotinamide (Niacinamide) to control skin aging and pigmentation. In *Antioxidants* (Vol. 10, Number 8, pp. 1–24). MDPI. <https://doi.org/10.3390/antiox10081315>
- Christina, D. O., & Pitarisa, P. A. (2024). Analysis of Rhodamine B in Lip Creams from the Marketplace. *J.Food Pharm.Sci*, 12(3), 190–197. <https://doi.org/10.22146/jfps.14053>
- Cliatt, L., & Petrides, J. (2024). Facial Skincare Routine Adherence in the General Population. *Cureus*, 1–8. <https://doi.org/10.7759/cureus.75810>
- Couteau, C., & Coiffard, L. (2016). Overview of skin whitening agents: Drugs and cosmetic products. *Cosmetics*, 3(3), 1–16. <https://doi.org/10.3390/cosmetics3030027>
- Daswi, D. R. (2025). Education On The Selection And Use Of Safe Cosmetics Free From Harmful Chemicals. *Jurnal Pengabdian Kefarmasian*, 6(2), 55–59. <https://doi.org/10.32382/jpk.v21i2.1824>
- Du, X. N., He, Y., Chen, Y. W., Liu, Q., Sun, L., Sun, H. M., Wu, X. F., & Lu, Y. (2024). Decoding Cosmetic Complexities: A Comprehensive Guide to Matrix Composition and Pretreatment Technology. *Molecules*, 29(2), 1–30. <https://doi.org/10.3390/molecules29020411>
- EUIPO. (2024). *Similarity between pharmaceuticals and cosmetics*. https://euipo.europa.eu/tunnel-web/secure/webdav/guest/document_library/contentPdfs/about_euipo/boards_of_appeal/research_reports/Similarity_between_pharmaceuticals_and_cosmetics_en.pdf
- Fauziah, F., Nurlenawati, N., & Triadinda, D. (2025). Pengaruh Fear Of Missing Out (Fomo) Terhadap Keputusan Pembelian Produk Skincare Dengan Konten Media Sosial Tiktok Sebagai Variabel Moderasi. *JURNAL LENTERA BISNIS*, 14(2), 1421–1436. <https://doi.org/10.34127/jrlab.v14i2.1478>
- Fernández-Martín, F. D., & Ayllón-Salas, P. (2026). Impact of Service-Learning Among Adolescents: A Systematic Review. *Adolescents*, 6(1), 1–23. <https://doi.org/10.3390/adolescents6010010>
- Fikri, E., & Firmansyah, Y. W. (2023). A Short Communication: Contamination and Toxicity Pigment Red 53, Rhodamine B, and Sudan III in Indonesian Cosmetics. *Jurnal Serambi Engineering (JSE)*, VIII(3), 6125–6131.
- Forkel, S., Matzke, S. S., Hollstein, M. M., Kreft, B., Löffler, H., Skudlik, C., Sulk, M., Heine, G., Bauer, A., Wagner, N., Heratizadeh, A., & Buhl, T. (2026). Strengths and Limitations of Sodium Lauryl Sulfate as an Irritant Control in Patch Testing. *Contact Dermatitis*, 94(4), 338–346. <https://doi.org/10.1111/cod.70075>
- Handayani, I. A., Efrilia, M., Listy, S., Falestin, S. L. K., Chandra, B. P., & Christian, Y. E. (2025). The Impact Of Hazardous Cosmetics On Skin Health: Hydroquinone Content In Online Whitening Creams. *Medical Sains : Jurnal Ilmiah Kefarmasian*, 10(4), 423–430.
- Hilmi, I. L., Rianoor, N. P., & Gatera, V. A. (2022). The Correlation Between Knowledge and

- Attitude Toward the Behavior of Choosing Facial Skincare Through Social Media in One of University in Karawang-West Java' Students. *Pharmacon: Jurnal Farmasi Indonesia*, 19(2), 203–212. <https://doi.org/https://journals.ums.ac.id/pharmacon/issue/view/1307>
- Khaerunisa, R., & Husain, F. (2025). Experience dan Persepsi Perempuan Terhadap Dampak Kesehatan Kulit dalam Keputusan Penggunaan Produk Skincare. *SOSIOGLOBAL: Jurnal Pemikiran Dan Penelitian Sosiologi*, 9(2), 113–132. <https://doi.org/https://jurnal.unpad.ac.id/sosioglobal/article/view/61544>
- Megasari, S., Perwitasari, M., Uzia Beandrade, M., & Anindita, R. (2022). Kandungan Hidrokuinon Dalam Lotion Pemutih Yang Beredar Di Wilayah Cikarang Dengan Metode Spektrofotometri UV-Vis. *Jurnal Mitra Kesehatan*, 5(1), 18–26. <https://doi.org/10.47522/jmk.v5i1.150>
- Munthe, H., Sartika Daulay, A., Ridwanto, R., & Munandar Nasution, H. (2025). Detection and Quantification of Rhodamine B in Loose Powder and Blush Cosmetic Products. *Indonesian Journal of Pharmaceutical Education*, 5(2), 191–201. <https://doi.org/10.37311/ijpe.v5i2.30832>
- Noerfitri, Anindita, R., Sianturi, R., & Pradana, A. A. (2023). *Manajemen Analisis Data* (cetakan 1). CV. Graha Ilmu
- O'Connor, C., Messaraa, C., Kearney, & Mavon, A. (2020). *Clinical Confirmation Multi-step Routines Deliver Better Benefits to Skin*. 135, 1–0. <https://doi.org/www.CosmeticsandToiletries.com>
- Oh, Y., Tan Koo, K., Mi Suk, J., Pablo Castanedo-Cázares, J., & Torres-, B. (2025). References Acknowledgment Conflict of Interest. *Journal of Cosmetology & Trichology*, 11(01), 2.
- Pitaloka, K. I. R., Burhanuddin, H., Fauziah, L., Lugastara, R., & Aminah, S. (2025). Edukasi Pemilihan Kosmetik yang Aman dan Cara Cek Kosmetik Terdaftar BPOM. *SUBSERVE: Community Service and Empowerment Journal*, 3(1), 82–86. <https://doi.org/10.36728/scsej.v3i1.73>
- Pleguezuelos-Beltrán, P., Herráiz-Gil, S., Martínez-Moreno, D., Medraño-Fernandez, I., León, C., & Guerrero-Aspizua, S. (2024). Regenerative Cosmetics: Skin Tissue Engineering for Anti-Aging, Repair, and Hair Restoration. *Cosmetics*, 11(4), 1–17. <https://doi.org/10.3390/cosmetics11040121>
- Poelheken, M., & van der Bent, S. A. S. (2026). Dermatologists' Perspectives on Skincare Routine Trends. *Clinical, Cosmetic and Investigational Dermatology*, 19, 1–8. <https://doi.org/10.2147/CCID.S603986>
- Puspitasari, E. C., Mukhlisah, I. R. N., Ridwan, S., Pratiwi, T. E., & Manafe, G. P. D. (2026). Edukasi Penggunaan Kosmetik pada Remaja di Pondok Khusus Putri Al-Halimy Lombok Barat. *Jurnal Pelayanan Dan Pengabdian Masyarakat (PAMAS)*, 10(2), 125–132. <https://doi.org/10.52643/pamas.v10i2.6122>
- Putri, M. R. S., & Suminar, R. S. (2026). Bandung Conference Series: Law Studies Kewenangan BPOM dalam Mengawasi Peredaran Produk Skincare yang Membahayakan Kesehatan Ditinjau dari Undang-Undang Nomor 17 Tahun 2023 Tentang Kesehatan Juncto Peraturan BPOM Nomor 12 Tahun 2023 Tentang Pengawasan Pembuatan dan Peredaran Kosmetik. In E. Yudianty (Ed.), *Bandung Conference Series: Law Studies* (pp. 823–830). UPT Publikasi Ilmiah, Universitas Islam Bandung. <https://doi.org/10.29313/bcss.v6i1.23207>
- Rahmasari, S. K., Waznah, U., Maharisti, R. A., & Safitri, A. (2022). Analysis of Rhodamin B on Lipstick, Blush On and Eye Shadow in Pekalongan Regency With UV-Vis Spectrophotometer. *JURNAL ILMU KESEHATAN*, 10(2), 152–0.
- Regina, A., Pebrianggara, A., & Hariasih, M. (2026). Jurnal Akuntansi dan Manajemen Pengaruh kualitas produk, fear of missing out (FOMO), dan daya tarik iklan terhadap keputusan

- pembelian produk Skintific di kalangan Gen Z. *Jurnal Akuntansi Dan Manajemen*, 23(02), 159–174. <https://doi.org/10.36406/jam.v23i2.326>
- Sujani, P., Veera Babu, M., Premitha, P., Lakshmi, R., Swathi, B., & Sekhar, C. (2021). Evaluation of Cosmetics: A Review. *Research Journal of Pharmaceutical Dosage Forms and Technology*, 13(1), 76–81. <https://doi.org/10.5958/0975-4377.2021.00014.8>
- Supardi, R. R. S., & Hutabarat, S. M. D. (2025). Comparative Legal Analysis of Indonesian and South Korean Consumer Protection in Cosmetic Safety Regulations. *Rechtsidee*, 13(1), 1. <https://doi.org/10.21070/jihr.v13i1.1052>
- Susiyarti, S., Febriyanti, R., Mahardika, M. P., & Riyanta, A. B. (2024). Edukasi tentang Pemilihan Kosmetik Aman melalui Pengenalan Cara Uji Kualitatif Hidrokuinon pada Produk Skincare pada Siswi SMK Muhammadiyah Lebaksiu Tegal. *Jurnal Pengabdian Kepada Masyarakat Wahana Usada*, 6(1), 16–25. <https://doi.org/10.47859/wuj.v6i1.334>
- Tantra, M. A. L. (2025). Pertanggungjawaban Pelaku Usaha Atas Overclaim di Kandungan Skin Care pada Produk Retinol Serum ElsheSkin. *Aliansi: Jurnal Hukum, Pendidikan Dan Sosial Humaniora*, 2(5), 151–162. <https://doi.org/10.62383/aliansi.v2i5.1210>
- Tejasswini, R. R. (2019). Cosmetics vs Cosmeceuticals Why to Choose Cosmeceuticals? *Int J Clin Expl Dermatol*, 4(7), 1–7. <https://doi.org/www.opastonline.com>
- Tikirik, O. W., Fikriyah, & Sahrianti, N. S. (2023). Penyuluhan Tentang Cerdas Memilih Kosmetik Aman “Remaja Sehat Remaja Cerdas” di SMAN 1 Tapalang Barat. *Jurnal Pengabdian Pada Masyarakat (J-PMas)*, 2(2), 51–59. <https://doi.org/10.37606/j-pmas.v2i2.85>
- United Nations. (2025). *The Sustainable Development Goals Report*. <https://doi.org/https://unstats.un.org/sdgs/report/2025/The-Sustainable-Development-Goals-Report-2025.pdf>
- Vendruscolo, C. W., Bagatin, E., & Leonardi, G. R. (2025). The Science Behind the Label: Evaluating Claims in Dermatologist-Recommended Cosmetics. *Dermatological Reviews*, 6(4), 1–10. <https://doi.org/10.1002/der2.70045>
- Wibowo, N. P., Subekti, R., & Raharjo, P. S. (2024). Studi Perbandingan Pengaturan Peredaran Kosmetik Antara Badan Pengawas Obat Dan Makanan Republik Indonesia Dengan Food And Drug Administration Amerika Serikat. *Terang: Jurnal Kajian Ilmu Sosial, Politik Dan Hukum*, 1(1), 138–147. <https://doi.org/10.62383/terang.v1i1.77>