ORIGINAL ARTICLE

Knowledge, Attitude and Practice towards the Appropriate Use of Anti-Acne Products amongst Youths and Adults

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ABSTRACT

Acne is the most common skin disorder, especially in youths and adults, regardless of gender. However, with the wide range of ages and education, people's knowledge, attitudes, and practices might be diverse. Therefore, it is essential to understand the correct treatment. This study aimed to identify the knowledge, attitude, and practice towards the appropriate use of anti-acne in the community. The study was carried out in the neighbouring area of Universitas Airlangga, Surabaya, using a validated questionnaire. The data were analyzed with nonparametric correlation using Spearman Correlation. According to the data collected from 103 participants, about 62.1 % (n=64) had a moderate level of knowledge, 50.5 % had a positive attitude toward using anti-acne products, and 61.2 % (n=63) had positive responses in the practice of using anti-acne products. There was a positive correlation between the participant's knowledge and practice ($p<0.001$; $r= 0.388$). This study concludes that a health promotion program is a warranty to increase the public's level of knowledge.

Keywords: *Acne, Anti-acne, Attitude, Knowledge, Practice*

INTRODUCTION

In the new era, acne is the most common skin disorder, especially in youths and adults, regardless of gender. Moreover, acne leads to significant morbidity associated with residual scarring and psychological disturbances such as poor self-image, depression, and anxiety, which negatively impact the quality of life (Dalgard et al., 2008; Gieler et al., 2015). According to one study, patients thought diet, poor skin hygiene, genetics, hormones, and infections were the leading causes of acne (Tan et al., 2001).

Furthermore, there were countless myths and misconceptions among patients and health physicians concerning the causes and treatment of acne (Brajac et al., 2004). Young adults primarily experience acne, which causes significant emotional distress for those populations. According to Machiwala's study in 2019, acne was believed to be contagious by many people (21%), and some even hope to have an immediate cure for acne. This indicates that present-day youth lack knowledge regarding acne. A study was conducted to evaluate the level of knowledge of acne and the factors that could impact the disease's course among young adults (Al-Natour et al., 2017). Besides, acne could be treated by anti-acne products and work in different ways on different types of acne, depending on their active ingredients. However, many people may not comprehend or know how to treat acne with anti-acne solutions effectively. There were several misconceptions and a lack of knowledge, attitude and practice regarding acne, which significantly influenced the etiopathogenesis and outcomes of acne patients' therapies. This could have a significant impact on the course of the skin disorder among youths and adults (Hulmani et al., 2017). As far as we know, studies depict the community's perspective of knowledge, attitude, and practice towards the proper use of anti-acne products.

Therefore, this study was conducted to identify the knowledge, attitude, and practice amongst youths and adults in the range of 17 to 65 years old because these were the ages when people were most commonly seen to have acne problems, mainly due to hormonal changes (Rocha et al., 2018). Furthermore, our target participants comprise both local and non-local teens and adults in order to examine and compare knowledge, attitude, and practice about the proper use of anti-acne products. Aside from that, the purpose of this study was to investigate the source or channel of information regarding anti-acne products and how the target audience obtained them.

RESEARCH METHODOLOGY

Design of the survey (Method)

Survey research was a quantitative research method used for collecting data from a set of respondents. Data collection was obtained by handing out paper-based questionnaires and Google Forms that had been validated to the respondent physically (offline) and via Google Forms (online). The survey was conducted from the 14th to the 20th of September 2022 (7 days) at three locations.

Population and samples

The target population was male and female youths and adults aged 17 to 65. There were at least 100 respondents, 50 males and 50 females. This study involved respondents with the following criteria: (1) age (minimum 17 to 65 years old); (2) can read, talk and understand both in English and Bahasa Indonesia; (3) willingly taking/filling out the questionnaire. Those who were students, lecturers and staff from the Faculty of Pharmacy Universitas Airlangga were excluded from the study.

Instrument

Data collection was carried out using an online questionnaire in the form of Google Forms and printed media in the form of a paper-based questionnaire. The questionnaire consists of four main sections: participants' demographics, knowledge, attitude and practices, with different formats of questions: true/false, multiple choice, agree-disagree bar, and short essay. Each answer had a score that would be calculated at the end of the survey.

The questionnaire contains seven demographic questions: age, gender, ethnicity, current level of education, occupation, educational history, and marital status. There were nine knowledge questions: two multiple-choice questions and seven true or false questions. The respondents' knowledge score was assigned a value of one if they replied correctly and a value of 0 if they answered wrong.

Furthermore, the attitude portion included nine questions with Likert Scale responses of strongly agree, agree, neutral, disagree, and strongly disagree. The attitude score was assigned based on the nature of the questions, which were either positive or negative. Positive items were scored as strongly agree (5), agree (4), neutral (3), disagree (2), and strongly disagree (1). In the meantime, negative items were assigned a score of strongly agree (1), agree (2), neutral (3), disagree (4), and severely disagree (5). The practice session had ten questions divided into three categories: yes or no questions, multiple choice questions, and opinions.

Validation

Before the questionnaire was distributed, validation (face validation) was carried out first to check its feasibility in terms of language and content. There were 15 people involved in validating the research questionnaire. The validation results were in the form of feedback and suggestions from respondents.

Data analysis

The descriptive analysis involved using statistical measures and visualizations to describe and understand the data, where the variables include the total knowledge, practice, and attitude score. Data processing was done with IBS SPSS Ver. 25, and Spearman's correlation was done because the data was not normally distributed. Data scoring was done where participant's scores for each variable were categorized into several levels. Knowledge has poor (1-8), moderate (9-10) and good (>11); attitude has negative (1-30) and positive (>31), and practice has negative (1-8) and positive (>9).

ESULT AND DISCUSSION

Table 1. Respondents' Demographic Characteristics, n = 103.

Characteristics	n (%)
Age	103 (103,0)
Mean = 23.7 ± SD 7.017	
Gender	
Male	50 (48.5)
Female	53 (51.5)
Ethnicity	
Malay	21 (20.4)
Batak	2 (1.9)
Javanese	50 (48.5)
Sundanese	1 (1.0)
Others	29 (28.2)
Current level of education	
Highschool	21 (20.4)
Diploma	10 (9.7)
Bachelor	57 (55.3)
Postgraduate	15 (14.6)
Occupation	
Government sector	3 (2.9)
Private sector	18 (17.5)
Own business	5 (4.9)
Not working	2 (1.9)
Student	71 (68.9)
Others	4 (3.9)
Education Background	
Science	75 (72.8)
Non-Science	28 (27.2)
Marital Status	
Single	88 (85.4)
Married	15 (14.6)
At what age do you experience having acne?	
<17 years old	31 (30.1)
17 years old	51 (49.5)
18 years old	6 (5.8)
19 years old	5 (4.9)
20 years old	4 (3.9)
21 years old	4 (3.9)
>21 years old	2 (1.9)
From where do you get information about acne and its treatment?	
Printed Media	5 (4.9)
Social Media	45 (43.7)
Television	6 (5.8)
Internet	38 (36.9)
Others	9 (8.7)

Based on the survey, it was found that 75 respondents out of 103 respondents (72.8%) were from a science background. In the majority, 57 respondents (55.3%) were bachelor students, and 88 respondents were unmarried (85.4%). From this survey, 50 respondents (48.5%) were Javanese, 29 respondents (28.2%) were of other ethnicity, 21 respondents (20.4%) were Malay, two respondents (1.9%) were Batak, and 1 (1.0%) respondent were Sundanese.

Most of the respondents (52 respondents, 49.5%) were 17 years old. Although acne is known as a common skin condition that can affect people of all ages (Vos et al., 2012), it is particularly prevalent during

adolescence, typically between the ages of 15 and 19, which coincides with the onset of puberty, which triggers hormonal changes in the body (Frénard et al., 2021; Lynn et al., 2016; Stathakis et al., 1997). Other age range of the respondents in the survey includes less than 17 years old (31 respondents, 30.1%), 18 years old (6 respondents, 5.8%), 19 years old (5 respondents, 4.9%), 20 years old (4 respondents, 3.9%), and 21 years old (4 respondents, 3.9%).

Acne exacerbation may be related to stress, which can occur due to working and studying (Rodriguez et al., 2014). From the survey, 71 respondents (68.9%) were students, 30 respondents (29.2%) were working, and only two respondents (1.9%) were not working. It was also known that most respondents get information regarding acne and its treatment from social media (45 respondents, 43.7%), the internet (38 respondents, 36.9%), other resources (9 respondents, 8.7%), television (6 respondents, 5.8%), and printed media (5 respondents, 4.9%).

Knowledge towards proper use of anti-acne products

Table 2. Respondent's knowledge of acne (n = 103)

Statement	Answered Correctly n(%)
Acne is an inflammatory disorder caused by bacteria.	95 (92.2)
All acne should be treated with antibiotics.	38 (36.9)
Do you think that hormonal fluctuation is associated with acne?	102 (99.0)
Squeezing or pricking pimples will only promote infection and cause scarring.	99 (96.1)
Always maintaining good hygiene can prevent acne.	97 (94.2)
Balancing skin pH is not essential to control acne.	75 (72.8)
Do you think that acne cannot be affected by pregnancy?	95 (92.2)

In the majority, 51 respondents (49.5%) started having acne when they were 17 years old. It is not new for adolescents aged around 17 years old to have acne problems. This is due to the hormonal changes or puberty that they were experiencing during this period. Based on Karciauskiene in 2014, it was found that acne in pubertal girls was three times, and in pubertal boys, almost five times higher, compared with pre-pubertal schoolchildren. Several studies have pointed out that a family history of acne increases the risk of acne (Heng et al., 2020). Social media has become a staple in society nowadays as a source of entertainment, essential information, and daily activities. About 43.7% of the respondents, the majority, received information regarding acne and its treatment from social media, while the rest received information from various other channels such as printed media, television, the internet, and others.

About 92.2% of respondents knew that acne was an inflammatory disorder caused by bacteria. Based on McLaughlin in 2019, the anaerobic bacterium *Propionibacterium acnes* was believed to play an essential role in the pathophysiology of the common skin disease acne vulgaris. From the analysis of the results, most of the respondents (n=103, 62.1%) had average knowledge of the proper use of anti-acne products and the reason for the appropriate usage. They still lacked knowledge of some crucial information. Only 36.9% of respondents knew that antibiotics for acne cannot be used without an accurate diagnosis by a doctor or certified dermatologist (Table 2).

Taking antibiotics without appropriate guidance or diagnosis by the doctor may cause many issues, including increased AMR (antimicrobial or antibiotic resistance). Other than that, those under oral antibiotic treatments for acne typically need to consume the medications for 3-6 months or even longer, which increases the risk of developing antibiotic resistance (Walsh et al., 2016).

A number of 96.1% of respondents knew that squeezing or pricking pimples would only promote infection and cause scarring, and 94.2% of respondents knew that one of the ways to prevent acne was by maintaining proper hygiene. 72.8% of respondents were aware that balancing skin pH was essential to control acne problems. About 99% of respondents were aware of the association of hormonal fluctuations with acne, and 62.1% of respondents knew that pregnancy also affects the occurrence of acne. Hormones implicated in acne pathogenesis included androgens, estrogens, progesterone, insulin and insulin-like growth factor-1, CRH, adrenocorticotropic hormone (ACTH), melanocortins, glucocorticoids, and growth hormone (GH) (Balachandrudu et al., 2015). During puberty, androgens stimulate sebum production and acne formation in both sexes (Elsaie M. L. et al., 2016). Next, progesterone inhibited 5α-reductase required to convert testosterone to the more potent dihydrotestosterone (DHT). Menstrual flare and sebum exacerbations were caused by progesterone, whose receptors were only expressed in basal epidermal keratinocytes (Lakshmi et al., 2013). Estrogen may influence sebum formation through negative feedback inhibition of the gonadal axis and increased production of sex hormone-binding globulin (SHBG) by the liver, thereby decreasing free serum testosterone, directly counteracting the action of testosterone in the sebocytes, and influencing the genetic regulation of sebaceous gland and sebocyte formation (Thiboutot et al., 2004). Therefore, age and pregnancy were related to hormones, which would affect the production of sebum and acne progression.

This lack of knowledge might happen due to many factors, including less exposure to the understanding of anti-acne products and acne itself, especially those from poor-income families or neighbourhoods that had limited sources of proper information (Bima et al., 2022). Besides, people thought that acne was not considered an important issue.

Attitude towards proper use of anti-acne products

Table 3. Respondents' attitude on the use of anti-acne products (n=103)

Statement	Strongly Disagree (%)	Disagree (%)	Neutral (%)	Agree (%)	Strongly Agree (%)
People's mindset influences the acne survey.	0	7 (6.8)	29 (28.2)	45 (43.7)	22 (21.4)
You feel depressed if you have acne.	6 (5.8)	7 (6.8)	18 (17.5)	37 (35.9)	35 (34.0)
You would recommend friends/family about anti-acne products.	1 (1.0)	5 (4.9)	24 (23.3)	45 (43.7)	28 (27.2)
You would consult a healthcare professional regarding acne problems.	3 (2.9)	6 (5.8)	26 (25.2)	39 (37.9)	29 (28.2)
You would practice self-medication if you have acne, but you are not going to see a doctor.	7 (6.8)	11 (10.7)	33 (32.0)	34 (33.0)	18 (17.5)
You believe that follow-up for the anti-acne treatment is essential.	0	4 (3.9)	11 (10.7)	44 (42.7)	44 (42.7)
You are easily influenced by what others say about anti-acne products.	14 (13.6)	20 (19.4)	31 (30.1)	31 (30.1)	7 (6.8)
You have the desire to buy an anti-acne product after watching any random advertisement online.	21 (20.4)	30 (29.1)	25 (24.3)	23 (22.3)	4 (3.9)
You are willing to pay the cost of acne diagnosis and treatment.	48 (46.6)	0	0	0	55 (53.4)

The majority (50.5%) of the respondents exhibited a positive attitude towards the proper use of anti-acne products. A positive attitude is a useful stepping stone to the success of any future initiatives or actions to help enhance the community's awareness and knowledge of this subject. About 35.9% of respondents agreed that acne causes them to feel dispirited and depressed, and 34.0% strongly agree with the statement. Often, acne causes intense feelings of anxiety and stress, which sometimes can make people with the condition socially withdrawn. Those factors, in combination, may lead those with acne problems to become depressed (NHS, 2019). About 43.7% of respondents agreed that they recommend anti-acne products to their family and friends (Table 3).

Only 37.9% of respondents agreed that they would consult a healthcare professional if they had serious acne problems. About 33.0% agreed that they would self-medicate if they had mild acne and were not going to see a doctor. Meanwhile, 42.7% agreed with another 42.7% strongly agreed that follow-ups for anti-acne treatment of serious acne problems were important. Furthermore, 30.1 % of respondents agreed that they were easily affected by what others were saying about anti-acne products, while the remaining 30.1 % were undecided. The feeling of having little control over acne and therapy was linked to both psychological impact and treatment adherence. Concerns and uncertainty over acne treatments were influenced by variable advice and information from others (Ip et al., 2020). Only 22.3% of respondents agreed, while 29.1% of respondents disagreed that they have the desire to buy an anti-acne product after watching any random advertisement online. Other than that, 53.4% of respondents were willing to pay the cost of acne diagnosis and treatment, while the additional 46.6% were not due to financial constraints (Table 3).

Practice towards proper use of anti-acne products

Table 4. Respondent's practice in utilization of anti-acne products (n=103).

Statement	Answer Correctly n (%)
When you have an acne breakout, you will consult a doctor/ dermatologist.	50 (48.5)
You will check the authenticity of the anti-acne product before purchasing, especially from a small store or online store.	93 (90.3)
You never read the instructions provided on the product label or packaging before using the product.	75 (72.8)
You never check the expiry date shown on the product label or packaging before buying or using the product.	87 (84.5)
Antibiotics for acne treatment are always available at your home for self-medication of severe acne without a doctor's prescription.	58 (56.3)
We should apply anti-acne medication on our skin using: Fingers, cleaned fingers, an applicator, or a pad *Multiple choice question The participant's answer is incorrect if "fingers" alone are chosen	88 (85.4)

There were 61.2% of positive responses. About 51.5% of respondents stated that they did not consult a doctor or a certified dermatologist when having an acne breakout. Meanwhile, 90.3% checked the authenticity of the anti-acne product before purchasing, especially from a small store or online store. More than 70% read the instructions, and 84.5% would check the expiry date (shown on the product label or packaging before buying or using the product). About 56.3% of respondents used antibiotic therapy for acne problems correctly, did not always have antibiotics ready at home for no reason and

did not use antibiotics for self-medication of severe acne without a doctor's prescription (Table 4).

About 85.4% of respondents knew the proper way to apply topical anti-acne medication on the skin, which is by using cleaned fingers, an applicator, or a pad. About 58.8% of respondents always got their anti-acne products from the pharmacy, 38.2% from the online store, 38.2% from the cosmetic store, 26.5% from the minimarket/ supermarket, 19.6% from the clinic and another 15.7% from the beauty clinic.

Another study showed that many participants had tried all available topical treatments, although they were unsure what was in them or unaware of the differences between cosmetic and pharmaceutical therapies. They had concerns about how to use topical products properly and how to avoid the side effects. They were also concerned about the side effects or necessity of oral treatments, although few seemed aware of antibiotic resistance (Ip et al., 2020). Most of the respondents in this study had good practices; they purchased their anti-acne products mainly from authorized premises such as the pharmacy, which helped to ensure the safety and efficacy of the anti-acne products and eventually led to good results from the treatment.

When asked how frequently and why they changed their anti-acne products, approximately 63.1% of respondents said yes. In contrast, the majority of respondents rarely changed their anti-acne product unless there was a need, such as an allergy, sensitivity, or poor anti-acne product results. Another 90.3% had a positive response when asked how often they use anti-acne medication; the majority utilize the drug as stated or advised, not excessively or unnecessarily. When questioned about their current acne prescriptions and if they follow the doctor's instructions, nearly 99.0 % said yes.

Table 5. Knowledge, attitude and practice category (n=103)

Variables	Category	n (%)
Knowledge	Good	11 (10.7)
	Moderate	64 (62.1)
	Poor	28 (27.2)
Attitude	Positive	52 (50.5)
	Negative	51 (49.5)
Practice	Positive	30 (29.1)
	Negative	73 (70.9)

Participant's answers were collected and divided into several categories based on the score. Table 5 shows that only 10.7% of the participants had good knowledge of acne and its treatment, while 29.1% of the participants showed positive practices in treating acne. It is also shown that half of the participants had a positive attitude toward the correct acne treatment, while the other half did not. Spearman's correlation showed that there is a strong positive correlation only between knowledge and practice with $p = 0.000$ and $r = 0.388$ (correlation significant at the 0.01 level (two-tailed)), while there is a weak correlation between the two variables and attitude. This shows that participants with good knowledge of correct acne treatment tend to have better practices, while one's attitude does not reflect a person's knowledge or practises. This comes down towards individual beliefs about how they feel about acne impacting their life or how they should treat their acne. Despite having good or poor knowledge, it does not guarantee that a person with a positive attitude towards acne will have good practices in treating acne (Darwish, et. al., 2013). According to the data (Table 5), it is quite alarming that 7 out of 10 participants have negative practices, and less than an eighth of the total participants are classified as having good knowledge of correct acne treatment; thus, spreading awareness and knowledge enrichment are required in an effort to improve people's knowledge and practices.

Media, such as the distribution of books, pamphlets, or brochures, can be utilized to increase awareness campaigns. The presentation should include a classification of acne causes, dos and don'ts, kinds of acne, anti-acne products, an explanation of PAO (Period After Opening) and ED (Expired Date), and content.

CONCLUSION

Based on this study, it can be inferred that respondents' grasp of the acne problem was moderate. The proportion of responders who are favourable about the correct use of anti-acne products is relatively high. The majority of people said yes to many questions about their experiences and habits with prescribed acne drugs and treatments. The majority of respondents get product information from social media, while the majority of respondents get their anti-acne products from pharmacies.

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