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Knowledge and attitude towards moisturiser use: A cross-sectional study in Malang

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Abstract

Background: Moisturiser, or emollient, hydrates the skin and is the second most used skincare product among Indonesian women, following face wash. Moisturizers vary in formulation and ingredients, and choosing the wrong one can lead to ineffective results or side effects. Understanding people's knowledge and attitudes toward moisturizer use is essential. **Objective:** This research aimed to determine the correlation between the level of knowledge and attitudes toward selecting moisturiser products among the people of Malang, which consists of Malang City, Malang Regency, and Batu City. **Method:** The study used an observational analytic method with a cross-sectional design, recruiting one hundred male and female respondents from Malang through purposive sampling. A questionnaire assessed demographics, knowledge, and attitudes toward moisturizer use, and its validity and reliability were confirmed. **Result: T**he people of Malang had a good level of knowledge (32%), average knowledge (51%), and poor knowledge (17%), while those who had a positive attitude (41%) and a negative attitude (59%). The results of the correlation between knowledge and attitude by the Spearman test showed a significance value of 0.007 ($p < 0.05$) and a correlation value of + 0.267. **Conclusion:** There was a significant correlation with a moderate level of correlation. Respondents' knowledge of the dosage form and active ingredient content of moisturiser indicators still needs to be improved.

Introduction

There are many reasons why people of all ages use cosmetic products, such as to increase self-confidence, protect themselves from sunlight and environmental pollution, and prevent premature ageing (Tranggono & Latifah, 2013). Moisturiser mainly consists of lipids and their components (active ingredients and excipients), which can fill the gaps in intercorneocytes, thereby increasing skin hydration, smoothness, and flexibility. Apart from that, its functional moisturiser maintains the skin's water.

Content by creating a hydrophobic barrier over the skin, thereby blocking trans-epidermal water loss. Moisturisers containing hygroscopic substances can increase the corneum layer's water absorption by drawing water from the dermis layer and the moist environment into the epidermis (Draelos, 2018).

The selection and use of the right moisturiser will provide optimal benefits. User profile moisturiser in adolescents in Thailand shows that 475 of the 588 participants used the product moisturiser (Nitiyarom *et al.,* 2022). The data also shows that moisturiser is the first and most frequently used skin care product. One of the reasons shown in the study for respondents to use skin care products was to hydrate or moisturise the skin, which was chosen by 335 of 588 participants. A survey of 294 young women at a vocational school (SMK) in Yogyakarta, Indonesia, showed that more than 60% of respondents used moisturiser products and occupied the third position in cosmetic products used among them (Lestari & Widayati, 2022).

Gaining insight into individuals' knowledge and attitudes on utilising moisturisers is of utmost significance. A study examining the knowledge, attitude, and behaviour of Thai adolescents found that adolescent females and high school adolescents had significantly higher levels of accurate knowledge and practice in cleansing and photoprotection ($p < 0.001$) compared to adolescent males and junior high school adolescents (Nitiyarom *et al.,* 2022). According to another study involving pharmacists, the average level of knowledge regarding the expiration date, appropriate use, and ingredients of moisturisers was 86%, 58%, and 42%, respectively (Kurban *et al.,* 2020).

Indonesia's tropical climate exposes people to moderate to strong sunlight during the dry season. As in Malang and all cities in Indonesia, the dry season spans from May to October (Irawan *et al.,* 2022). During the dry season, the skin produces more sebum to maintain hydration. Some people in warm climates think that having oily skin means they don't need moisturisers, but this is a misconception. Oily skin can still be dehydrated and, therefore, requires moisturising products. Moreover, sun exposure can further dry out the skin, reducing its moisture and natural oils. (Qiu *et al.,* 2011). In addition, sweat or sebum contains salt and water, which quickly evaporate; when these contents evaporate, it will cause the skin to become dehydrated. Without proper hydration, the skin will produce more sebum to compensate for dryness, leading to acne and irritation (Baker, 2019).

Pharmacists have an important role in medication or skin care because pharmacists are often the initial means to buy medicine or skin care products over-the-counter (OTC) or in retail pharmacies. When people encounter problems with their skin, they tend to immediately buy skin care products from pharmacies because they are easier to reach and reduce the cost of seeing a dermatologist. This data is shown in the results data survey from Zap, which showed that 57.2% of Indonesian women chose to buy skin care products directly at pharmacy retailers (Zap Beauty Clinic & Markplus, 2021).

This study aims to establish a correlation between the level of knowledge and attitudes towards selecting moisturising products among the residents of Malang, including Malang City, Malang Regency, and Batu City.

Methods

Design

Analytical observational research uses a cross-sectional approach. The research was conducted from December 2022 to May 2023. Purposive sampling is the sampling technique used in this research. The sample size was determined using the Lemeshow formula, considering a confidence level of 95%, a proportion (p) of 0.5, and a precision level (d) of 0.1 (Yu *et al.,* 2017). In research, 100 respondents were obtained with the criteria being residents of Malang (Malang City, Malang Regency, and Batu City) who were ≥ 18 years old, currently or have ever used the moisturiser product, is not currently undergoing therapy for skin problems from a doctor and does not work as a clinician or pharmacist.

The instrument used in this research is a questionnaire consisting of ten statements related to demographics, twelve statements related to the level of knowledge, and fifteen statements related to attitudes towards moisturiser use. The level of knowledge is good if the respondent can answer ten out of 12 statements with the correct answer. It is classified as an average level of knowledge if the public can answer seven to nine statements with the correct answer. It is said to be classified as a poor level of knowledge if the respondents can answer ≤ six statements with the correct answer. The calculation to categorise respondents' attitudes is by calculating the T score and then comparing it with the average T score of all respondents (T score mean) (Azwar, 2013). This research has received approval from the Ethics Commission of the Faculty of Medicine, Universitas Brawijaya, with letter number 40/EC/KEPK/03/2023.

Assessment

The results of the knowledge level data were scored using a Guttman scale, and the results of product selection attitude data using a Likert scale were then tested for validity and reliability using SPSS (Statistical Product and Service Solutions) version 25.0 to 60 respondents and tested on experts using content validity index (CVI) methods. Valid data (*r* count > 0.254; item-CVI > 0.78) (Polit *et al.,* 2007) and reliable (Cronbach's alpha value > 0.6) (Dewi & Sudaryanto, 2020) were then tested for normality using the *Kolmogorov-Smirnov*. Spearman test is used to measure the correlation.

Results

The data on respondents' demographic characteristics, shown in Table I, indicate that respondents could select multiple information sources, leading to a total frequency of over 100. Most participants, 56 respondents (56%), obtained their moisturiser from an online store. Additionally, all participants are familiar with applying moisturiser.

Table I: Demographic data

Characteristics	Amount	Percentage (%)
Gender		
Woman	81	81
Man	19	19
Sub-total	100	100
Age		
18-23	63	63
24-30	12	12
31-35	8	8
> 35	17	17
Sub-total	100	100
Education level		
Elementary school/equivalent	0	0
Middle school/equivalent	2	2
High school/equivalent	56	56
Diploma (D1/D2/D3/D4)	14	14
Bachelor's degree	28	28
Sub-total	100	100
Occupation		
Students/College students	46	46
Private employees	28	28
Self-employed	13	13
Housewife	9	9
Government employees	3	3
Unemployed	1	1
Sub-total	100	100
Length of use moisturiser		
≤ 1 month	15	15
> 1 to 3 months	18	18
> 3 to 12 months	29	29
> 1 to 5 years	27	27
≥ 5 years	11	11
Sub-total	100	100
Skin type		
Combination skin	38	38
Oily skin	24	24
Normal skin	14	14
Dry skin	12	12
Sensitive skin	12	12
Sub-total	100	100
Source of information		
Social media (Instagram/Facebook/YouTube)	80	54
Mass media (Television/Radio/Magazines)	15	10.1
Others	49	33.1
Forget	2	1.4
I never had that information before	2	1.4
Sub-total	148	100
Place to get moisturiser		
Online store	56	56
Cosmetics store	18	18
Minimarket/Supermarket	17	17
Pharmacy	7	7
Others	2	2
Sub-total	100	100

Table II outlines the characteristics of the respondents. Among 100 participants, the most commonly used moisturiser was "*Skintific with 5X Ceramide*", chosen by 18 respondents (18%). The key ingredients included glycerin, ceramides, and sodium hyaluronate, with niacinamide having the highest active concentration.

Knowledge level data on moisturisers

The following is data from the questionnaire results for the level of knowledge variable listed in Table II.

Table II: Knowledge questionnaire results

Indicator	Statements	True answer (n, %)
Definition	Facial moisturiser products are skincare products that can moisturise the skin on the face and body (+).	93 (93%)
Indication	Moisturising products only function to moisturise the skin (-).	65 (65%)
Skin type	People with oily skin do not need to use facial moisturiser products every day (-).	77 (77%)
Length of use	Moisturising facial products can be used at least once a day, every day, and over a long period (+).	87 (87%)
Method of use	The best time to use facial moisturiser is immediately after washing your face (+).	83 (83%)
Dosage form	The facial moisturiser suitable for dry skin is a product with a liquid consistency (-).	44 (44%)
	For people with oily skin, using a facial moisturiser with a thick consistency is appropriate (-).	51 (51%)
Content	Fragrance is an example of an ingredient that may be contained in a facial moisturiser (+).	30 (30%)
Side rffect	If used excessively, some of the side effects of facial moisturiser products are the formation of blackheads and acne (+).	88 (88%)
Safety (Physical characteristics)	Period After Opening (PAO) is the time limit for using cosmetics after opening the packaging. Cosmetics can still be used according to the PAO period even though they have passed the expiry date (-).	69 (69%)
	A facial moisturiser that changes its consistency from thick to liquid can still be used until the safe limit after opening the packaging (PAO) (-).	66 (66%)
Safety (Registration)	The product is still safe to use, even though the distribution permit number listed on the packaging cannot be traced on the official website of the Food and Drug Supervisory Agency (BPOM) (-).	89 (89%)

(+): true statement; (-): false statement

Table II shows two indicators (dosage form number six and content number eight), indicating the need for more respondents' knowledge regarding these indicators. After scoring and calculating, this data shows that most respondents were respondents in categories with average knowledge, namely 51% (51 respondents).

The selection of moisturiser products

Based on the results of the attitude questionnaire in product selection moisturiser, which consisted of 15 statements and was filled in by 100 respondents. The data is shown in Table III.

Table III: Attitude questionnaire result

No.	Indicator	Statements	Answer				Total frequency (n)
			Very agree	Agree	Disagree	Strongly disagree	
1a	Acceptance	The following statements are filled in according to the respondent's skin type. **Dry Skin Type:** I have a dry skin type, so I expect my skin to become more moisturised after using facial moisturiser (+).	12 (12%)	0 (0%)	0 (0%)	0 (0%)	12
1b		The following statements are filled in according to the respondent's skin type. **Oily Skin Type:** I have oily skin, so I use facial moisturiser once every 2 days (-).	2 (2%)	10 (10%)	8 (8%)	4 (4%)	24
1c		The following statements are filled in according to the respondent's skin type. **Sensitive Skin Type:** I have sensitive skin, so I hope there will not be redness after using facial moisturiser (+).	10 (10%)	3 (3%)	0 (0%)	0 (0%)	13
1d		The following statements are filled in according to the respondent's skin type. **Normal Skin Type:** I have a normal skin type, so I can choose any facial moisturiser (+).	3 (3%)	7 (7%)	3 (3%)	1 (1%)	14
1e		The following statements are filled in according to the respondent's skin type. **Combination Skin Type:** I have a combination skin type, so I choose a facial moisturiser with a thick consistency to maximise results (-).	6 (6%)	20 (20%)	11 (11%)	0 (0%)	37
Total frequency for statement number 1							100
2	Acceptance	I immediately used the newest facial moisturiser recommended by an influencer because the ingredients are definitely safe for my skin (-).	1 (1%)	16 (16%)	64 (64%)	19 (19%)	100
3		If my skin has acne, I avoid ingredients in facial moisturisers that are comedogenic (trigger the appearance of acne), such as Shea Butter (+).	31 (31%)	67 (67%)	2 (2%)	0 (0%)	100
4		I always check the ingredients of moisturiser products before I buy or use them (+).	36 (36%)	55 (55%)	8 (8%)	1 (1%)	100
5		I have an oily skin type, so I choose facial moisturiser products with a waterier consistency (high in water content), such as gel (+).	18 (18%)	66 (66%)	14 (14%)	2 (2%)	100
6	Response	I use facial moisturiser regularly every day (+).	43 (43%)	48 (48%)	8 (8%)	1 (1%)	100
7		I can use the same brand of facial moisturiser for more than 5 years (+).	11 (11%)	55 (55%)	33 (33%)	1 (1%)	100
8		I use different moisturising products for the face and neck (-).	0 (0%)	12 (12%)	74 (74%)	14 (14%)	100
9		I use facial moisturiser products after using sunscreen products (-).	2 (2%)	17 (17%)	60 (60%)	21 (21%)	100

No.	Indicator	Statements	Answer				Total frequency (n)
			Very agree	Agree	Disagree	Strongly disagree	
10	Value	I consulted with a doctor or pharmacist regarding using a facial moisturiser that suits my skin type (+).	5 (5%)	62 (62%)	33 (33%)	0 (0%)	100
11	Responsibility	I still feel safe using imported facial moisturiser products even though I cannot understand the language on the packaging (apart from Indonesian and English) (-).	3 (3%)	24 (24%)	59 (59%)	14 (14%)	100
12		I still use facial moisturiser products whose smell or consistency changes from the information on the packaging (-).	1 (1%)	8 (8%)	55 (55%)	36 (36%)	100
13		 I will not use facial moisturiser products with a logo on the packaging like above after 12 months of opening the packaging (+).	20 (20%)	56 (56%)	22 (22%)	2 (2%)	100
14		After one use, I stopped using a facial moisturiser if a tingling effect occurs (-).	20 (20%)	53 (53%)	27 (27%)	0 (0%)	100
15		I stop using facial moisturiser products if they cause a rash on the skin (+).	33 (33%)	67 (67%)	0 (0%)	0 (0%)	100

(+): Favourable statement; (-): Unfavourable statement

Table III shows that several respondents still have inappropriate attitudes, namely in the acceptance indicator, indication category (numbers 1b and 1e), and the responsibility indicator, side effect alert category (number 14). Based on the data above, respondents are classified as having a responsible attitude level because many respondents have behaved well at every level of their attitude. The questionnaire assessment was carried out using a Likert scale according to the statement favourable (supports the research object) or unfavourable (does not support the research object). It is known that of all respondents, the most data are respondents in categories with negative attitudes, as many as 59 (59%). Meanwhile, 41 respondents (41%) had a positive attitude.

Normality test data

The data obtained from this research is not normally distributed, where the significance value is 0.007 < 0.05 (Irwan Gani & Siti Amalia, 2015).

Correlation test

This study used the Spearman test to conduct a correlation analysis. Spearman test is used because the normality test results show that the data obtained is not normally distributed. The results of the correlation test showed a significance value of 0.007 (p < 0.05), with a correlation coefficient value of 0.267, indicating a moderate relationship or correlation (Lailatus Sa'adah, 2021).

Discussion

According to the data in Table II, the respondents' top choices for moisturiser ingredients were Glycerin, Ceramide, Sodium Hyaluronate, and Niacinamide. Glycerin, Ceramide, and Sodium Hyaluronate are effective for hydrating the skin. Ceramide is the preferred ingredient among the general population, mostly influenced by the recent surge in social media recommendations. It is widely promoted for its ability to enhance the skin barrier and alleviate acne, among other benefits (Deviana Nadia Salsabila, 2021). Ceramides are derived from several oils, including jojoba, safflower, and grapeseed. They can also be extracted from phytoceramides found in oats and wheat. These ceramides offer advantages in restoring impaired skin barriers. In addition, moisturisers that contain this particular component can alleviate symptoms of skin irritation and inflammation (Kahraman *et al.,* 2019). Ceramide aids in replenishing lipid deficits in the skin and plays a crucial role in preserving the skin's water permeability barrier function. Ceramide is an emollient that effectively preserves skin moisture by bridging the gaps between corneocytes (Zeichner & Del Rosso, 2016).

Knowledge of moisturisers

Based on data from Table III, two indicators (dosage form number six and content number eight) indicate the respondent's need for more knowledge regarding these indicators. Statement number six is wrong,

whereas the statement should be, "The form of facial moisturiser suitable for dry skin is a product with a thicker consistency or contains more of an oil phase. As many as 44% of respondents answered with the correct answer. For dry skin, it is best to have a cream texture or one with a higher-viscosity moisturiser. A thicker form or a higher oil content will provide a long-lasting moisturising effect on the skin because it does not evaporate quickly. The skin comprises a layer of adipose tissue; hence, formulations with a higher concentration of oil will be readily absorbed into the skin. However, on the other hand, moisturisers with more oil phase will be greasy (perceived oily effect on the skin), which may cause discomfort in some users (Wendy C. Fries, 2022).

Statement number eight shows that 30% of respondents answered correctly. From these results, many respondents still need to learn what ingredients are permitted or prohibited in product moisturisers. The fragrance is one of the additional ingredients allowed to be contained in moisturiser products with an amount that does not exceed reasonable limits and a type of fragrance that is safe to use (Siti Zulaikha, Sharifah Norkhadijah & Praveena 2015). Examples of fragrance ingredients that can be contained in facial care products are benzyl alcohol, *alan* root oil, and *costus* root oil (Badan Pengawas Obat Dan Makanan, 2022b).

It is known that out of 100 respondents, the majority of respondents had an average level of knowledge category, namely 51% (51 respondents). These results can be influenced by the willingness to obtain information, lack of information regarding reliable facial care products, the veracity of information circulating on social media, level of education, economic conditions, experience, and age (Alsharif *et al.,* 2022).

Attitudes in selection of moisturiser

Based on data from Table IV, there are two categories (indication and warning of side effects), which shows that many respondents have inappropriate attitudes when selecting product moisturisers. Statement number 1b is intended for respondents who have oily skin types. The right attitude is that if you have an oily skin type, you can use moisturiser and keep a daily routine. Patients with dry skin exhibited a considerably higher stratum corneum water (SCW) content than control sites. Additionally, the localisation score of desmoglein 1 was much lower after eight weeks, but only when the moisturiser was used twice daily. Applying a moisturiser with a dosage of at least 1.0 mg/cm2 twice a day, immediately after bathing at night and in the morning, resulted in moisturised skin, as confirmed by the skin's physiological processes (Ueda *et al.,* 2022).

Statement number 1e is aimed at respondents with combination skin types. Statement 1e is included in the indicator for accepting the dosage form category. This statement is a statement unfavourable. Where as many as 11% of 37% of respondents with combination skin types chose answers that tended to disagree, it can be concluded that many respondents still have inappropriate attitudes in selecting product moisturisers for combination skin indications. For someone with a combination skin type, it is recommended to use a moisturiser product, which has a light consistency and contains more water phase. This recommendation is to minimise side effects due to the accumulation of facial care products on the skin (Fries, 2022).

Statement number 14 is classified as an unfavourable statement. As many as 73% of respondents chose answers that tended to agree, thus indicating that many respondents had inappropriate attitudes in selecting moisturiser products based on awareness of side effects. The initial sensation of tingling that happens when first applying skin care products is common. Thus, moisturisers can still be applied. This effect becomes abnormal if the substance continues to provide a tingling sensation even after repeated use. Some side effects of wrongly choosing moisturisers are the appearance of red rashes on the skin, blackheads, and acne. The product should be discontinued immediately if the moisturiser causes these side effects (Amaro-Ortiz *et al*., 2014).

The right way to choose a moisturiser is to recognise the skin type, choose products registered with the Indonesian Food and Drug Regulatory Agency (BPOM), not easily trust products that give results quickly, and pay attention to the information listed on the product label (Badan Pengawas Obat dan Makanan, 2022a). Things that can influence people to tend to have a negative attitude are the lack of valid and reliable information and means of information, age, economic conditions, personal experience, cultural factors, level of education, and psychological factors (Draelos, 2018).

The outcome data indicates a direct correlation between this research and prior studies on the connection between knowledge and attitudes towards purchasing sunscreen and skincare products that contain lignin. The results obtained showed a significant relationship between variables and a low to moderate correlation value of + 0.15 (Sajinčič *et al.,* 2021). Meanwhile, the analysis level knowledge results in another study show an average level, and the analysis of attitudes in voting shows that the respondents have a negative attitude. The results of the knowledge and attitude level in this study align with previous studies where 74% of respondents had a good level of knowledge, and 58.7% of respondents also had a good attitude (Ueda *et al.,* 2022). These results can be

influenced by age, economic status, socio-cultural background, experience, and psychological considerations. In addition, one of the pharmacist's responsibilities is to promote public awareness about the significance of adhering to accurate information when selecting and utilising products (Ministry of Health, 2016). The general public should not fully trust reviews provided by influencers or beauty bloggers and pieces without credible sources. It is recommended that the public verify if the chosen or used moisturiser product meets the safety criteria and fulfils its requirements.

Conclusion

There is a positive and significant correlation, categorised as a moderate correlation, between the level of knowledge and attitudes toward product selection moisturisers in the people of Malang City, Malang Regency, and Batu City.

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