



Awareness and Knowledge of The Public on Facial Skin Care Products

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ABSTRACT

Background: Skincare encompasses a diverse range of products and procedures tailored to individual needs due to the varying skin types among people. The market is flooded with myriad products and not every product is suitable for everyone due to its content such as fragrances and preservatives which cause adverse reactions such as allergies and headaches. Additionally, the prevalence of counterfeit products has risen with the power of the Internet, reflecting the importance of equipping the public with the skills to select appropriate skincare products effectively. **Objective:** The purpose of this study was to determine the knowledge of the public on facial skincare products as well as their level of awareness regarding facial skincare products. **Method:** This is a quantitative cross-sectional study that involved the distribution of an online questionnaire via Google Forms from December 2022 to February 2023. The self-developed questionnaire consisted of three parts that collected information regarding participants' sociodemographic, knowledge and awareness on facial skincare products which is then categorized according to Bloom's cutoff. **Results:** Only 127 respondents (32.99%) scored more than 80% in Section B, indicating a high level of knowledge on facial skincare products while 205 respondents (53.25%) scored between 60% to 79% and 53 respondents (13.77%) scored less than 60%, indicating that they had moderate and low level of knowledge respectively. Meanwhile, 284 respondents (73.77%) had a high level of awareness on facial skincare products as they scored more than 80% in Section C while 87 respondents (22.60%) scored between 60% to 79% and 14 respondents (3.64%) scored less than 60%, indicating that they had moderate and low level of awareness respectively. **Conclusion:** The knowledge of the respondents regarding facial skincare products was moderate based on a mean score of 14.33 (71.65%) while their level of awareness was high based on a mean score of 23.38 (83.51%).

INTRODUCTION

Skin, the body's largest organ, benefits from a skincare routine that may include creams, moisturizers, toners, exfoliators, and other products collectively called skincare products. Meanwhile, the process of applying such products is known as a skin care routine [1]. It is crucial for individuals to tailor their skincare routines to meet their unique needs as effective skincare varies from person to person and from skin type to skin type [2]. In addition, personalized skincare is essential for maintaining optimal skin health throughout their life as there is a positive relationship between the use of skin care products on the quality of life of the consumers [3].

The skin care market in Malaysia has been experiencing exponential growth throughout the years and is expected to have a 10% annual growth, projecting a total revenue of 888.2 million USD in 2024 [4]. Meanwhile, according to an article published in the Malaysia Skin Care Products Market Size & Share Industry Report 2027, the respective market size was estimated at 804.5 million USD as of the year 2019 and is expected to experience a compound annual growth rate (CAGR) of 8.1% by 2027 with the market size growing to about 1,288.7 million USD in the same year [4].

However, many controversial ingredients such as fragrances and preservatives are found in skincare as they are considered a source of adverse reactions such as allergies and headaches. Besides, heavy metals such as lead, chromium, mercury etc. are also ingredients of concern as they may cause dermatitis, allergic skin reactions, and even absorbed into the body which causes disruption of organ function if presented in high concentrations. However, according to a survey conducted by the FDA, the amounts of heavy metals used in products were for the most part very small and do not present a health risk. Another important yet commonly ignored problem is the existence of counterfeit products, presence of false information on the internet as well as the safety of the products sold in an informal setting such as convenience stores around the neighborhood. The eCommerce Market in Malaysia is projected to reach 8.97 billion USD in 2024, allowing products to be easily promoted through online platforms and social media such as WhatsApp or Instagram. However, most of these products might not have been examined and authorized by government authorities [5]. This is very alarming as for a normal consumer without any background knowledge on the products, they might fall into the trap of product marketing as these products are often labelled as authentic but with a much lower price compared to the original, legitimate product.

Most consumers also do not read the labels and instructions provided on the facial skin care product packaging for the ingredients used in them before consuming them [6]. They also do not care too much about the possible side effects that follow upon using inappropriate facial skin care products. This shows that there is still a lot of room for improvement with regard to the level of knowledge and awareness of the public on facial skin care products as they are not aware of many aspects involving facial skin care products such as the importance of obtaining accurate information from trusted sources, side effects of using unsuitable facial skin care products and etc.

At present, there are limited studies found in Malaysia via Google Scholar that focus on the level of knowledge and awareness of the public towards facial skin care product, which could possibly lead to detrimental consequences to the consumers. There was one study conducted by Hadi et al. in 2020 in Malaysia to assess the knowledge, practices, attitude and perception of users of cosmetics in Malaysia while another study was conducted by Awadh et al. in 2016 in Pahang, Malaysia to assess consumers of cosmetics products on their awareness, perception and attitude. Therefore, this study will be able to evaluate the level of awareness as well as the knowledge of the public on facial skin care products that are commercially available.

MATERIAL AND METHOD

Study Design

This study was a cross-sectional study that involved the distribution of an online self-administered questionnaire via Google Forms for three months from 2nd December 2022 to 28 February 2023 among the public in Malaysia. The eligibility criteria for the respondents were (1) Malaysians and (2) aged 18 years old and above. Individuals who were not Malaysians and/or aged 17 years old and below were excluded from participation in this study. Based on the Malaysian population of roughly 33 million, the sample size was calculated using the Raosoft sample size calculator with a margin of error of 5%, a confidence level of 95% and a response distribution of 50%, resulting in a minimum sample size of 385 participants [7].

Study Instrument

The questionnaire was divided into three sections, namely Section A Demographic Profile, Section B Knowledge of facial skin care products and Section C Awareness of facial skin care products. Prior to Section A, informed consent was obtained from all individuals included in the study. Incomplete questionnaires were excluded. Ethical approval was obtained from the Human Research Ethics Committee (JEPeM), Universiti Sains Malaysia (USM/JEPeM/22090603).

Section A collected the demographic information of the respondents which included age, gender, ethnicity, monthly household income, and profession. Section B consisted of eleven questions that were used to determine the level of knowledge of the respondents on facial skin care products while Section C consisted of nine questions used to determine the level of awareness of the respondents on facial skin care products. Questions that were being asked were in the form of multiple-choice questions, 5-point Likert Scale questions as well as 'Yes' and 'No' questions, which were further analyzed to determine the level of awareness and knowledge of the public on facial skin care products. The total score for Section B was 20 while Section C was 28, calculated by adding scores for 8 questions in Section B and Section C, excluding multiple-choice questions. Every Likert scale question's response was transformed into scores using 5 points for very important, completely understand, very familiar, and very well aware and 1 point for not important at all, not understand at all, not familiar at all and not aware at all. The question that contained 'Yes' or 'No' as the response was scored as 1 for Yes and 0 for No. Finally, the respondents' level of knowledge and awareness will be categorized into three different levels based on Bloom's cut-off into high (80% to 100%), moderate (60%-79%) and low (below 60%) [8,9].

Data Analyses

Upon collection of data, it was then analyzed through descriptive analysis as well as inferential analysis by using Statistical Package for the Social Sciences (SPSS) Version 18 [10]. Categorical data such as demographic data was presented as frequency and percentage while continuous data was expressed as mean ± standard deviation [11]. The chi-square test was used to determine whether there were statistically significant association between the demographic characteristics of the subjects with the awareness and knowledge of the public on facial skin care products [11,12]. A p-value of less than 0.05 was considered statistically significant.

RESULT

Demographic characteristics

A total of 385 respondents participated in this study. Around half of the respondents were aged 18 to 27 years old (N=210, 54.5%) while the mean age of the respondents involved in this study was 32.92 ± 13.67 years old. More than half of the respondents were female (N= 215, 55.8%) while the amount of Malay and Chinese respondents that participated in this study were almost equal with 168 (43.6%) and 147 (38.2%) respectively. Other than that, the monthly household income of the participants was almost equally distributed, whereby RM4850-RM10960 was the most common monthly household income among the respondents (N=169, 43.9%) while more than half of the respondents were students (N=234, 60.8%) (Table I).

Knowledge of facial skin care products

From the study, the majority of respondents (N=205, 53.25%) have a moderate level of knowledge of facial skin care products while 53 respondents (13.77%) have a low level of knowledge (Table II). Overall, respondents scored 14.33 ± 2.90 or 71.65% ± 14.52 in Section B, indicating that the level of knowledge of respondents on facial skin care products is moderate and there is a need to implement various measures to further ameliorate their level of knowledge.

Table I: Demographic profile of respondents.

Variables	Number of respondents (N)	Percentage of respondents (%)
Age		
18-27 years old	210	54.5
28-37 years old	56	14.5
38-47 years old	46	11.9
48-57 years old	39	10.1
58-67 years old	34	8.8
68+ years old	0	0.0
Gender		
Male	170	44.2
Female	215	55.8
Ethnicity		
Malay	168	43.6
Chinese	147	38.2
Indian	70	18.2
Others	0	0.0
Monthly Household Income		
< RM4850	116	30.1
RM4850-RM10960	169	43.9
>RM10960	100	26.0
Profession		
Student	234	60.8
Healthcare related	89	23.1
Non-healthcare related	62	16.1

Association between respondents’ demographic profile and their level of knowledge of facial skin care products

According to Table III, all demographic profiles with the exception of ethnicity were significantly associated with their level of knowledge of facial skin care products as shown by a p-value of less than 0.05.

Awareness of facial skin care products

Based on our study findings, the majority of the respondents (N=284, 73.77%) have a high level of awareness of facial skin care products as they managed to score more than 80% according to their responses given when inquired on questions

Table II: Respondents’ mean score and percentage on their level of knowledge on facial skin care products.

Score	Percentage	Number of respondents, N (%)	Mean score	Standard Deviation	Mean percentage	Standard Deviation
<12	<60%	53 (13.77)				
12-15.8	60%-79%	205 (53.25)	14.33	2.90	71.65%	14.52
16-20	80%-100%	127 (32.99)				

Table III: Association between respondents' demographic profile and their level of knowledge on facial skin care products.

Demographic Profile	P-value ^a
Age	0.031
Gender	0.001
Ethnicity	0.196
Monthly Household Income	0.000
Profession	0.000

^aChi-square test

regarding their awareness (Table IV). A small minority of respondents (N=14, 3.64%) scored less than 60%, indicating that they have a low level of awareness of facial skin care products. Overall, respondents managed to score 23.38 ± 3.10

Table IV: Respondents' mean score and percentage on their level of awareness on facial skin care products.

Score	Percentage	Number of respondents, N (%)	Mean score	Standard Deviation	Mean percentage	Standard Deviation
<17	<60%	14 (3.64)				
17-22	60%-79%	87 (22.60)	23.38	3.10	83.51%	11.08
23-28	80%-100%	284 (73.77)				

DISCUSSION

Based on our study, 13.77% of respondents had a low level of knowledge of facial skin care products, 53.25% had a moderate level of knowledge and 32.99% had a high level of knowledge. The mean score obtained by respondents was 14.33 ± 2.90 , indicating that respondents have a moderate level of knowledge regarding facial skin care products. Our findings are consistent with another study that was conducted in 2024 in Sri Lanka whereby 43.9% of respondents were characterized as having a moderate level of knowledge on facial skin care products [13]. Similarly, according to a study done by Hadi et al. in 2020 in Malaysia involved 552 Malaysian respondents aged 20 to 60 years old, subjects had insufficient knowledge on cosmetic products especially in the field of ingredients used and the associated adverse reactions [14]. A previous study conducted in Saudi Arabia in 2018 also found that undergraduates also had a low level of knowledge on facial skin care products especially on the potential adverse effects of the products [15]. Hence, there is a need to further educate the general population to ensure that they will be well equipped with the knowledge essential to allow the selection of suitable skin care products such as through organizing public seminars and workshops, collaborating with dermatologists and experts in conducting such seminars and workshops and establishing platforms that allows cosmetovigilance of skin care.

or equivalent to $83.51\% \pm 11.08$, indicating that respondents have a high level of awareness of facial skin care products. Overall, respondents managed to score 23.38 ± 3.10 or equivalent to $83.51\% \pm 11.08$, indicating that respondents have a high level of awareness of facial skin care products.

Association between respondents' demographic profile and their level of awareness of facial skin care products

Based on Table V, all demographic profiles with the exception of ethnicity were significantly associated with their level of awareness of facial skin care products as shown by a p-value of less than 0.05

Meanwhile, all demographic profiles with the exception of ethnicity were found to be significantly associated with respondents' level of knowledge indicated by a p-value of less than 0.05. This is also consistent with the findings of Hadi et al. who conducted a study in Malaysia in 2020 to examine the insight of Malaysian cosmetics users and reported that the level of knowledge of respondents was also significantly related to respondents' gender, occupation, and monthly household income while being negatively related with their age, and ethnicity [14]. It was found that females were more knowledgeable in facial skin care products as compared to males. This is also consistent with findings by Nitiyarom, et al. in 2022 in Bangkok, Thailand whereby male adolescents had low level of basic knowledge about skin care as compared to

Table V: Chi-square test on the association between respondents' demographic profile and their level of awareness on facial skin care products.

Demographic Profile	P-value ^a
Age	0.005
Gender	0.000
Ethnicity	0.093
Monthly Household Income	0.000
Profession	0.000

^aChi-square test

females [16,17]. However, according to Mansor et al. who conducted a study in East Coast of Malaysia (Terengganu, Pahang and Kelantan) in 2010, there was a significant difference in terms of age and the level of knowledge of respondents whereby younger respondents were more knowledgeable as compared to middle-aged respondents [18]. Several studies also reported a significant association between knowledge and various demographic profiles including a study conducted in China in 2023 which found that respondent's knowledge was significantly different based on gender and occupation; a study conducted in Labuan, Malaysia in 2019 found that the level of knowledge among different healthcare personnel was significantly different; another study conducted in Yazd, Iran in 2015 reported that there were no significant differences in terms of respondents' knowledge with their education level but there was a significant relationship with their monthly income; a study conducted in Lebanon in 2021 concluded that there was a significant association between the level of knowledge of respondents on cosmetics with their monthly income and location of living [19,20,21,22].

From our study, 3.64% of respondents had a low level of awareness of facial skin care products, 22.60% had a moderate level and 73.77% had a high level of awareness. Respondents scored an average of 23.38 ± 3.10 from Section C, indicating that respondents had a high level of awareness of facial skin care products as they scored an average of 83.51% (>80% according to Bloom's cutoff). The findings from our study oppose the findings of Shiraz in 2018 in West Bengal who stated that the general population still lacks awareness on the proper use of cosmetics especially in developing countries [23]. Likewise, according to another study conducted by Awadh et al. in 2016 in Kuantan, Pahang, Malaysia which involved Malaysians aged between 18 and 65 years old, the awareness of respondents from was found to be not satisfying whereby they were less aware of the cosmetic products in Malaysia [24]. This could be because different sample sizes that was utilized to determine the awareness level of the public as both studies utilized a significantly smaller sample size, 150 respondents and 66 respondents respectively, that is also restricted to a particular region which might not reflect the actual awareness of the general population. Similarly, from our study, all demographic profiles with the exception of ethnicity were found to be significantly associated with respondents' level of awareness on facial skin care products. This is contradicting the findings of Awadh et al. who conducted a study in Kuantan, Pahang, Malaysia in 2016 which involved Malaysians aged between 18 and 65 years old who concluded that there were no significant differences between demographic profile of the respondents (gender, age, race, occupation, and monthly income) and their awareness on cosmetic products [24].

There were several limitations to this study which might have affected the ability of the findings reported in this study to represent the general populations' perception on facial skin care products. Firstly, utilization of Google Forms to collect

data might have resulted in inaccurate data being collected as some participants might not be completely honest when answering the questionnaire. Furthermore, the collection of data through the internet via Google Forms may result in bias towards individuals with better access to the internet while limiting the participation of individuals with poor internet access. The age range of the respondents was mostly concentrated in the range between 18 to 27 years old, causing the results to be unable to reflect the actual nature of facial skin care product utilization within Malaysia even though the minimum required sample size of 385 respondents was achieved. Further studies with a larger sample size and a greater reach towards individuals of other age range might be able to provide a more accurate and in-depth perspective of the public on the awareness and knowledge on facial skin care products. Besides, the questionnaire was only available in English language which might have restricted information collection from populations who were not fluent or did not understand English language.

CONCLUSIONS

Overall, our study provided a preliminary understanding on the level of knowledge and awareness of the public in Malaysia on facial skincare products. Majority of respondents (N=258, 67.02%) scored less than 80% in Section B which investigates their level of knowledge while a large portion of respondents (N=284, 73.77%) obtained a score of more than 80% in Section C which looks into their awareness. Therefore, we can conclude that the general knowledge of respondents regarding facial skincare products was moderate while the respondents' level of awareness was high. Besides, respondents' age, gender, monthly household income and profession are associated with their level of knowledge and awareness of facial skincare products. As the skincare market continues to develop in Malaysia, it is crucial for the public to possess sufficient knowledge and awareness to empower them in choosing products that suit their needs effectively. Hence, this study serves as a basis for promoting interventions and proper education to improve the public's knowledge while maintaining their awareness on facial skin care products.

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