The Relationship Between the Level of Knowledge Regarding the Importance of Sunscreen Use for Skin Health and Compliance with Sunscreen Use Among Preclinical Students of the Faculty of Medicine, Universitas Islam Al-Azhar

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ABSTRACT

Sunblock shields the skin from harmful Ultraviolet (UV) rays. These rays, emitted by the sun, pose various health risks, particularly to the skin. UV exposure can lead to premature aging, melasma, melanoma, and other skin ailments. Therefore, applying sunscreen is vital in safeguarding the skin and preventing UV-induced diseases. Correct application of sunscreen is crucial to ensure its effectiveness. This research aims to establish the correlation between the level of knowledge regarding the significance of sunscreen for skin health and compliance to its use among preclinical students at the Faculty of Medicine, Universitas Islam Al-Azhar. The study employed a cross-sectional design and utilized stratified random sampling. The sample size comprised 124 respondents. Data analysis involved the Spearman Rank correlation test, with a significance threshold of (p 0.05). Analysis results revealed that 81 respondents (65.3%) possessed a good level of knowledge, 32 respondents (25.8%) had a sufficient level, and 11 respondents (8.9%) had a low level of knowledge. Regarding compliance, 91 respondents (73.4%) adhered to the criteria, while 33 respondents (26.6%) did not. Significantly, a strong association exists between knowledge about sunscreen's importance for skin health and compliance with its use among preclinical students at the Faculty of Medicine, Universitas Islam Al-Azhar (p-value of 0.00, p-value <0.05), with a coefficient of 0.511.

Keywords: Knowledge; Compliance; Sunscreen; UV Ray.

INTRODUCTION

Ultraviolet (UV) rays are one of the sun's emitted rays. Prolonged exposure to UV rays can lead to changes in skin structure and composition and oxidative stress on the skin. Skin issues that may arise include immediate effects like sunburn, pigmentation, photosensitivity and long–term consequences such as premature aging, melasma, and skin cancer (Putri et al., 2019).

Melanoma results from UV radiation exposure in individuals who are sensitive to sunlight. Sun exposure is estimated to cause over 85% of European

melanoma cases (Rueegg et al., 2019). Skin cancer accounts for 25% to 32.7% of all cancers globally (Goodarzi et al., 2018). In Asia, there are 2180 cases of melanoma, with 939 cases in Israel (Western Asia) and only 1 case in Malaysia (Southeast Asia) (Goodarzi et al., 2018). In Indonesia, skin cancer ranks third in frequency after uterine and breast cancer, comprising 5.9-7.8% of all cancer types per year (Setiabudi & Wardhana, 2021). Melasma, a skin hyperpigmentation condition, is caused by chronic sunlight exposure. Its prevalence varies worldwide, with figures such as 1.8% in Ethiopia, 8.2% in the United States, 6.8% in Nepal, and 13.61% in China (Sarkar et al., 2018). Melasma cases in Indonesia show variation across different hospitals. According to data from visits to the Dermatology and Venereology Outpatient Clinic at Dr. Cipto Mangunkusumo Hospital in Jakarta in 2011, melasma patients accounted for 18.1% of a total of 3,763 patients (Rinandari et al., 2021).

The skin employs defense mechanisms against the harmful effects of UV radiation, including sweat secretion, melanin production, and thickening of the outermost skin layer. However, more than these protective systems may be required under excessive exposure, as various environmental factors can gradually or rapidly damage the skin tissue. Therefore, sunscreen is necessary for additional skin protection (Putri et al., 2019).

Sunblock is a substance or material that protects the skin from harmful UV rays. Its usage is vital in preventing various skin diseases caused by UV exposure. Chronic exposure to UV rays can lead to conditions like melasma and melanoma. Currently, there is no observational analytical research available on the correlation between knowledge levels and compliance to sunblock usage among medical students in Indonesia. Nevertheless, several descriptive studies have been conducted on knowledge and compliance with sunblock usage. In a study conducted by Paramesti (2019), it was found that 87.0% of students possessed good knowledge about sunblock usage, while 81.3% had a positive attitude toward its application. Another study by Pratama (2021) revealed that 48.0% of students had good knowledge about sunblock usage, with 54.2% displaying a positive attitude. A study by Wadoe et al. (2020) demonstrated that only 5.0% of students had good knowledge about sunblock usage, and among the 52 students who used sunblock, none displayed a positive attitude. Lastly, Sinaga's study (2020) indicated that 36.2% of female students possessed good knowledge about

sunblock usage, and 53.4% of them had a positive attitude.

Based on the descriptive data from these studies, as mentioned earlier on knowledge and compliance with sunblock usage, it is evident that the level of knowledge and compliance among medical students is considered good. This finding is attributed to the researchers' utilizing samples of students who had already undergone an integumentary block. Consequently, the researchers are interested in conducting a study on preclinical students at the Faculty of Medicine, the Universitas Islam Al-Azhar, who still need to undergo the integumentary block, to assess their knowledge level and compliance, whether it is satisfactory or otherwise. Additionally, the researchers aim to establish a connection between the knowledge level regarding the importance of sunblock for skin health and compliance with its usage among medical students.

Research conducted in India involving 67 participants revealed that approximately 71.6% were knowledgeable about sun protection factors (Verma & Kapila, 2019). Based on a study carried out at an Indonesian university by Wadoe et al. (2020), out % of 130 participants, 81% had moderate knowledge, 14% had insufficient knowledge, and 5% had good knowledge. In Australia, the compliance rate for sunscreen use is approximately 75% (Rueegg et al., 2019), whereas, in the United States, only 30% of adults utilize sunscreen (Vasicak et al., 2018). Research conducted among South Asian women indicated that 53.8% of 131 participants used sunscreen (Korrapati et al., 2021). A study conducted at a Palestinian university regarding knowledge and behavior related to sunscreen use demonstrated that out of 250 participants, a mere 118 (47.2%) used sunscreen. Furthermore, within this group of 118 individuals, only 14.4% were male. In a study conducted at an Indonesian university, data revealed that out of 130 male participants, 52 utilized sunscreens (Mumtazah et al., 2020)

This research aims to ascertain the correlation between the level of knowledge regarding the importance of sunscreen use for skin health and compliance with sunscreen use among preclinical medical students at Universitas Islam Al-Azhar.

RESEARCH METHOD

This study employed a cross-sectional design. The research was conducted at the respective homes of the participants, utilizing the Zoom meeting application to provide a Google Form link containing participant identity information, informed consent, and a

questionnaire on knowledge and compliance with sunscreen use, which the participants subsequently completed. The study was carried out from August 1-2, 2022. The study population consisted of all active preclinical medical students at Universitas Islam Al-Azhar who had yet to participate in the integument block. Specifically, this included the two most recent cohorts, namely 81 students from the 2020 cohort and 99 students from the 2021 cohort, resulting in 180 students. The sample was selected using the probability sampling technique known as stratified random sampling, with a sample size of 124 participants.

The tools utilized in this study include respondent identity data and a questionnaire comprising various sections: informed consent, a 15-question survey on knowledge about the importance of using sunscreen for skin health, and a 10-question survey on compliance with sunscreen usage. The gathered data will be processed and analyzed using computer software, specifically the Statistical Package for the Social Sciences (SPSS). Two types of analysis will be conducted: univariate and bivariate analyses. The statistical test employed in this analysis is Spearman's rank test. In the Confidence Interval study, if the P value is < 0.05, it signifies the rejection of the null hypothesis (H0) (P-value $\leq \alpha$), indicating a significant relationship. Conversely, if the P value is ≥ 0.05, it signifies the acceptance of the null hypothesis (H0) (P-value $\geq \alpha$), suggesting no significant relationship.

RESULTS

This research was conducted on August 1, 2022, for the class of 2020 and on August 2, 2022, for the class of 2021. The questionnaire was filled out at each participant's home using the Zoom virtual meeting application. The sampling technique used was stratified random sampling, which involved dividing the population into strata, and selecting simple random samples from each stratum, resulting in a sample of 124 individuals from preclinical students Faculty of Medicine, Universitas Islam Al-Azhar, classes of 2020 and 2021.

Table 1: Respondents' Characteristics

Characteristics	Frequency	Percentage (%)
Age		
18-20 years	113	91,1%
21-23 years	11	8,9%
Sex		
Male	44	35,5%
Female	80	64,5%
Batch		
2020	56	45,2%
2021	68	54,8%

Based on the data analysis, the characteristics of the respondents were as follows: 113 respondents (91.1%) were

aged between 18-20 years, and 11 respondents (8.9%) were aged between 21-23 years. Regarding gender, there were 44 male respondents (35.5%) and 80 female respondents (64.5%). Additionally, 56 respondents were categorized based on class (Table 1).

Table 2. Univariate Analysis Based on Knowledge Level

Knowledge	Frequency	
	Number (n)	Percentage (%)
Good	81	65,3%
Sufficient	32	25,8%
Poor	11	8,9%
Total	124	100%

Based on data obtained from 124 respondents, the level of knowledge was classified as follows: 81 respondents

(65.3%) had a good level of knowledge, 32 respondents (25.8%) had a sufficient level of knowledge, and 11 respondents (8.9%) had a poor level of knowledge (Table 2).

Table 3. Univariate Analysis Based on Compliance Level

Compliance	Frequency	
	Number (n)	Percentage (%)
Compliant		73,4%
Non-compliant		26,6%
Total	124	100%

Based on data obtained from 124 respondents, the compliance level was classified as follows: 91 respondents (73.4%) were classified as compliant, and 33 respondents (26.6%) were classified as non-compliant.

Table 4. Bivariate Analysis of the Relationship Between Sunscreen Knowledge and Compliance with Sunscreen Use

Knowledge	Compliance			P-Value	r_s
	Compliant	Non-compliant	Total		
Good	72	9	81		
Sufficient	17	15	32	0,00	0,511
Poor	2	9	11		

Based on a bivariate analysis of the 124 respondents, it was found that 72 respondents (58.1%) had good knowledge and were compliant, while nine respondents (7.3%) had good knowledge but were non-compliant. Additionally, 17 respondents (13.7%) with sufficient knowledge were compliant, and 15 (12.1%) with

sufficient knowledge were non-compliant. Furthermore, two respondents (1.6%) with poor knowledge were compliant, and nine (7.3%) with poor knowledge were non-compliant.

Based on the analysis using Spearman's rank test, the p-value was 0.00 (p-value < 0.05) with a coefficient value of 0.511, indicating the rejection of

Ho. These findings demonstrate a significant relationship between the level of knowledge regarding the importance of sunscreen for skin health and compliance to sunscreen use among preclinical students at the Faculty of Medicine, Universitas Islam Al-Azhar.

DISCUSSION

Based on the results of bivariate analysis between the level of knowledge regarding the importance of using sunscreen for skin health and the compliance to sunscreen use among preclinical medical students at the Faculty of Medicine, Universitas Islam Al-Azhar, there is a significant relationship between the level of knowledge regarding the importance of using sunscreen for skin health and the compliance to sunscreen use among preclinical medical students at Faculty of Medicine, Universitas Islam Al-Azhar. The significant relationship from this bivariate analysis is influenced by the level of knowledge regarding the importance of using sunscreen for skin health among preclinical medical students at the Faculty of Medicine, Universitas Islam Al-Azhar, mostly falling under the good criteria, which leads to students complying with the use of sunscreen to protect themselves from UV radiation that can cause both acute and chronic skin damage.

Knowledge is an essential element or component that individuals must possess to shape their behavior and actions (Notoatmodjo, 2018). Lawrence Green's theory explains that behavioral and non-behavioral factors influence a person's health. Behavioral factors are influenced by three aspects: predisposing factors, which facilitate, underlie, or motivate the performance of an action; enabling factors, conditions in the environment that facilitate the performance of an action by individuals or organizations; and reinforcing factors, which strengthen the occurrence of a specific behavior (Pakpahan et al., 2021).

Knowledge plays a significant role in shaping a person's behavior, and compliance is one of the actions related to an individual's behavior. This is in line with the research conducted by Rahmadhani (2019) and Siantarin et al. (2018), which state that a significant relationship exists between knowledge and compliance. This finding is also supported by Darmayanti's research (2015), which states that compliance is an element of health behavior. Health behavior is an activity carried out by individuals who perceive themselves as healthy to prevent or detect diseases in the asymptomatic stage. Behaviors based on good knowledge are more sustainable than those without knowledge as a foundation. Thus, knowledge is a crucial

component that contributes to an individual's actions, specifically the knowledge of the importance of using sunscreen for skin health, which contributes to compliance to sunscreen use among preclinical medical students at the Faculty of Medicine, Universitas Islam Al-Azhar.

Knowledge results from knowing that occur after a person researches a specific object. Knowledge has six levels: knowing, understanding, applying, analyzing, synthesizing, and evaluating (Retnaningsih, 2016). Based on data obtained from 124 respondents, it was found that most respondents have a good level of knowledge regarding the importance of sunscreen for skin health. This is consistent with the research conducted by Paramesti (2019) and Pratama (2021), which state that most medical students have good knowledge.

One of the key factors impacting knowledge level is the pursuit of formal education. The higher the level of education, the greater the individual's knowledge. This aligns with research conducted by Putra and Podo (2017) and Setyaningsih, Gayatri, and Eddy (2018), which establish a significant relationship between education and knowledge level. Education is an activity or process that aims to change the attitudes and behaviors of individuals or groups, with specific goals of developing human

potential and fostering maturity through teaching and training. Consequently, higher education increases knowledge acquisition (Dwianti et al., 2021). Education level influences a person's abilities and ongoing development. Basic education is the foundation for knowledge and essential skills, followed by advanced education (Asliminarti, 2020).

Based on the research findings, it is evident that the respondents are currently pursuing a Bachelor of Medicine (Bachelor degree) degree. Individuals pursuing or have completed an undergraduate education possess a high level of knowledge. This is attributable to their access to abundant information from books, journals, and expert lectures. This finding aligns with Nurma Ika Zuliyanti's research (2019), which states that respondents with a bachelor's degree exhibit a high level of knowledge. Another influential factor is exposure to information; the more information one receives, the greater their knowledge (Rhamadany, 2021). These factors influence adequate knowledge among preclinical students at the Faculty of Medicine, Universitas Islam Al-Azhar, who still need to take the integumentary block. Medical students must be diligent, possess broad insights, and have high access to information from

various sources such as books, journals, and expert lectures.

According to Purwanti and Amin (2016), compliance refers to meeting requests and is defined as an act or action carried out based on the desires or demands of others. An individual's compliance to healthcare professionals' recommendations is influenced by various factors such as knowledge level, education, socioeconomic status, and culture. Data obtained from 124 respondents revealed that most participants fulfilled the criteria for complying with sunscreen usage, aligning with the findings of Paramesti's (2019) and Pratama's (2021) studies, where most respondents demonstrated good compliance with sunscreen application. Compliance with the criteria among preclinical students at the Faculty of Medicine, Universitas Islam Al-Azhar is influenced by their awareness of the hazards of UV radiation, which can lead to skin problems of both acute and chronic nature (Ridho, 2019).

CONCLUSION

Based on the research conducted on the correlation between the level of knowledge concerning the significance of sunscreen usage for skin health and the compliance to sunscreen usage among preclinical medical students at Universitas Islam Al-Azhar, the subsequent deductions can be made:

1. Most of the knowledge on the importance of sunscreen usage for skin health is satisfactory.

2. Most preclinical medical students at the Universitas Islam Al-Azhar exhibit a high level of compliance regarding sunscreen use.

3. The analysis results indicate a significant association between the level of knowledge regarding the importance of sunscreen usage for skin health and compliance to sunscreen usage among preclinical medical students at the Universitas Islam Al-Azhar.

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