



# Assessment of Knowledge and Usage Practices of Retinol-Containing Facial Skincare Products Among Medical Students at Baiturrahmah University

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## Abstract

**Background:** Retinol, a derivative of vitamin A belonging to the retinoid class, is widely used in facial skincare products due to its efficacy in the management of acne and prevention of premature skin aging. The increasing utilization of retinol among medical students necessitates adequate knowledge and appropriate usage practices to minimize potential adverse effects. **Objective:** To evaluate the level of knowledge and usage practices of retinol-containing facial skincare products among medical students at Baiturrahmah University. **Methods:** A descriptive cross-sectional study was conducted involving 64 medical students from the Faculty of Medicine, Baiturrahmah University. Participants were recruited using a consecutive sampling technique. Data were collected through a structured questionnaire and analyzed descriptively. **Results:** The majority of respondents demonstrated a good level of knowledge regarding retinol. Female students exhibited a higher proportion of good knowledge (67.2%) compared to male students. Based on age distribution, respondents aged 21 years showed the highest level of knowledge (62.5%). Appropriate retinol usage practices were predominantly observed among female students (68.1%) and respondents aged 21 years (70.2%). **Conclusion:** Medical students at the Faculty of Medicine, Baiturrahmah University generally demonstrate good knowledge and appropriate usage practices regarding retinol, with a predominance among female students and those aged 21 years.

**Keywords:** retinol, knowledge, usage practices, medical students

## I. Introduction

In recent years, the facial skincare industry has experienced substantial growth, accompanied by increasing public awareness of skin health. Facial skincare is no longer perceived solely as an aesthetic concern but has become an integral component of overall dermatological health maintenance.<sup>1-3</sup> Skincare products are formulated with various active ingredients targeting specific dermatological conditions, thereby necessitating adequate knowledge for appropriate selection and use.<sup>3</sup>

Retinol, a vitamin A derivative within the retinoid class, is one of the most commonly utilized active ingredients in facial skincare formulations.<sup>4</sup> It is well recognized for its efficacy in the management of acne vulgaris, improvement of skin texture, and reduction of signs of premature aging.<sup>5</sup> Retinol exerts its effects by stimulating collagen synthesis, modulating gene expression, and reducing oxidative stress, contributing to both its therapeutic and anti-aging properties. However, inappropriate use of retinol may result in adverse cutaneous reactions, including irritation, erythema, and desquamation. This underscores the importance of adequate knowledge and proper usage practices.<sup>6-8</sup>

Previous studies have demonstrated that despite the widespread use of retinol, user knowledge regarding correct application, contraindications, and potential adverse effects remains variable.<sup>9</sup> The increasing influence of social media and skincare-related promotional content has further contributed to misinformation and inappropriate usage patterns. As a result, individuals may adopt incorrect usage habits that increase the risk of adverse skin reaction.<sup>10-12</sup>

Medical students represent a unique population with greater access to health-related information and are expected to possess a higher level of knowledge regarding active dermatological agents. However, as young adults actively engaged in skincare trends, they may also be influenced by non-scientific sources. Furthermore, knowledge does not always translate into appropriate practice, as health behavior is influenced by multiple factors, including experience, attitudes, and information exposure.<sup>13</sup>

To date, studies evaluating knowledge and usage practices of retinol among medical students in Indonesia remain limited. Therefore, this study aims to assess the level of knowledge and usage practices of retinol among medical students at the Faculty of Medicine, Baiturrahmah University. The findings are expected to provide insight into the appropriateness of retinol use within this population and to support future educational strategies regarding safe and effective skincare practices.

## II. Methods

This study employed a descriptive quantitative design with a cross-sectional approach. It was conducted at the Faculty of Medicine, Baiturrahmah University, Padang, West Sumatra, Indonesia, from April 2025 to January 2026. This design was selected to describe the level of knowledge and retinol usage practices among medical students at a single point in time.

The study population consisted of active medical students aged  $\geq 21$  years. Samples were obtained using a non-probability sampling method, specifically consecutive sampling, whereby all eligible participants meeting the inclusion criteria were recruited during the study period. A total of 64 respondents completed the study.

Inclusion criteria included active medical students aged  $\geq 21$  years, prior knowledge or exposure to retinol-containing skincare products, and willingness to participate. Exclusion criteria included incomplete questionnaire responses or withdrawal during data collection.

Data were collected using a structured questionnaire adapted from previous studies.<sup>11</sup> The instrument consisted of three sections: respondent characteristics, knowledge regarding retinol, and retinol usage practices.

The knowledge component was assessed using a Guttman scale (“true,” “false,” and “do not know”), with correct responses scored as 1 and incorrect or unknown responses scored as 0. Knowledge levels were categorized as good, moderate, or poor based on percentage scores.

Usage practices were evaluated using a five-point Likert scale ranging from “strongly disagree” to “strongly agree,” assessing frequency of application, timing, concentration awareness, and sunscreen use. Scores were categorized into good, moderate, and poor.

Validity testing indicated that most questionnaire items were valid. Reliability testing demonstrated acceptable internal consistency, with Cronbach’s alpha values of 0.747 for the knowledge section and 0.832 for the usage practices section.

Data were analyzed descriptively using univariate analysis, presented as frequencies and percentages.

### III. RESULTS AND DISCUSSION

#### A. Respondent Characteristics

Based on Table 1, This study involved 64 medical students from the Faculty of Medicine, Baiturrahmah University. The majority of respondents were aged 21 years, accounting for 47 respondents (73%). This

was followed by respondents aged 22 years, totaling 13 respondents (20%), and those aged 23 years, with 4 respondents (6%). These findings indicate that most participants were within the early adulthood age group.

**TABLE 1. RESPONDENT CHARACTERISTICS**

Characteristics	Category	f	%
Age	21 years	47	73%
	22 years	13	20%
	23 years	4	6%
<b>Total</b>		<b>64</b>	<b>100%</b>
Gender	Male	16	25%
	Female	48	75%
<b>Total</b>		<b>64</b>	<b>100%</b>

Based on sex distribution, most respondents were female, comprising 48 respondents (75%), while male respondents accounted for 16 respondents (25%). The predominance of respondents aged 21 years and female participants reflects the characteristics of the study population recruited during the data collection period.

The distribution of respondent characteristics is related to the use of consecutive sampling, in which all eligible participants who met the inclusion criteria were recruited consecutively throughout the study period. Consequently, the sample characteristics represent the group of students who most frequently met the inclusion criteria at the time of data collection.

#### B. Retinol Use

The majority of respondents (73%) reported prior use of retinol-containing skincare products. This finding suggests that retinol is widely utilized among medical students, particularly for anti-aging and skin texture improvement.

These findings are consistent with the study conducted by Alsharif et al. (2022), which reported that 70.1% of respondents in the general population in Saudi Arabia had used topical retinoids, with usage predominantly observed among female respondents.<sup>13</sup> Similarly, studies by Al-Sheyab et al. (2023) and Sianti (2023) demonstrated higher

retinol use among women, which has been associated with greater attention to facial skincare and early aging prevention.<sup>9,11</sup>

### C. Knowledge of Retinol

**TABLE 2. FREQUENCY DISTRIBUTION OF KNOWLEDGE REGARDING RETINOL AMONG MEDICAL STUDENTS OF THE FACULTY OF MEDICINE, UNIVERSITAS BAITURRAHMAH BASED ON GENDER AND AGE**

Variable	Characteristics	Good		Moderate		Poor		Total	
		<i>f</i>	%	<i>f</i>	%	<i>f</i>	%	<i>f</i>	%
Gender	Male	6	(9,4%)	7	(10,9%)	3	(4,7%)	16	(25%)
	Female	43	(67,2%)	2	(3,1%)	3	(4,7%)	48	(75%)
	<b>Total</b>	<b>49</b>	<b>(76,6%)</b>	<b>9</b>	<b>(14,1%)</b>	<b>6</b>	<b>(9,4%)</b>	<b>64</b>	<b>(100%)</b>
Age	21 years	40	(62,5%)	5	(7,8%)	2	(3,1%)	47	(73,4%)
	22 years	8	(12,5%)	3	(4,7%)	2	(3,1%)	13	(20,3%)
	23 years	1	(1,6%)	1	(1,6%)	2	(3,1%)	4	(6,3%)
	<b>Total</b>	<b>49</b>	<b>(76,6%)</b>	<b>9</b>	<b>(14,1%)</b>	<b>6</b>	<b>(9,4%)</b>	<b>64</b>	<b>(100%)</b>

Despite a narrow age range, variability in knowledge levels was observed, suggesting that factors such as personal interest, experience, and information exposure contribute to knowledge acquisition.

These findings align with previous studies indicating variability in knowledge despite frequent usage, although they differ from studies in general populations, where knowledge levels tend to be lower. According to Notoatmodjo, knowledge is influenced by educational background, experience, and the intensity of information received by an individual.<sup>14</sup>

The studies conducted by Alsharif et al. (2022) and Al- Sheyab et al. (2023), which reported that although women and young adults are more frequent users of retinol, respondents' knowledge levels vary and are not evenly distributed across all

Most respondents demonstrated good knowledge (76.6%). Female students constituted the majority within this group, while respondents aged 21 years showed the highest proportion of good knowledge.

aspects of retinol use.<sup>9,13</sup> In contrast, the findings differ from those of Sianti (2023), who reported a low level of knowledge among general patients. This discrepancy may be attributed to differences in respondent characteristics, as medical students possess a health-related educational background and greater access to credible medical information.<sup>11</sup>

### D. Retinol Usage Practices

The results of this study indicate that the majority of respondents demonstrated good retinol use practices, based on Table 3, it was found that 40 respondents (85.1%) classified in the good category. Good usage practices were more frequently observed among female respondents (68.1%) compared to males, and were most prevalent in the 21-year-old age group (70.2%).

**TABLE 3. FREQUENCY DISTRIBUTION OF RETINOL USE PRACTICES AMONG MEDICAL STUDENTS OF BAITURRAHMAH UNIVERSITY BASED ON GENDER AND AGE Retinol Use Practices**

Variable	Characteristics	Good		Moderate		Poor		Total	
		<i>f</i>	%	<i>f</i>	%	<i>f</i>	%	<i>f</i>	%
Gender	Male	8	(17%)	1	(2,1%)	0	(0%)	9	(19,1%)
	Female	32	(68,1%)	5	(10,6%)	1	(2,1%)	38	(80,9%)
	<b>Total</b>	<b>40</b>	<b>(85,1%)</b>	<b>6</b>	<b>(12,8%)</b>	<b>1</b>	<b>(2,1%)</b>	<b>47</b>	<b>(100%)</b>
Age	21 years	33	(70,2%)	4	(8,5%)	1	(2,1%)	38	(80,9%)
	22 years	4	(8,5%)	2	(4,3%)	0	(0%)	6	(12,8%)
	23 years	3	(6,4%)	0	(0%)	0	(0%)	3	(6,4%)
	<b>Total</b>	<b>40</b>	<b>(85,1%)</b>	<b>6</b>	<b>(12,8%)</b>	<b>1</b>	<b>(2,1%)</b>	<b>47</b>	<b>(100%)</b>

Total	40	(85,1%)	6	(12,8%)	1	(2,1%)	47	(100%)
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The predominance of good retinol use practices among female respondents and those aged 21 years suggests an association between respondent characteristics and usage behavior patterns. According to health behavior theory, behavior is influenced not only by knowledge but also by experience, exposure to information, and social environment.<sup>14</sup> Repeated usage experience and more intensive exposure to skincare-related information may facilitate the development of more consistent and guideline-adherent retinol use practices.<sup>11</sup>

When compared with previous studies conducted in the general population, retinol use practices observed in this study appear to be more favorable. Alsharif et al. (2022) reported that only 36.0% of respondents used topical retinoids regularly, and more than half of the respondents used retinoids without a physician's prescription.<sup>13</sup> Similarly, Al-Sheyab et al. (2023) found that retinol use practices among non-medical populations remained at a moderate level.<sup>9</sup> These findings suggest that medical students in the present study exhibit relatively better retinol use practices than the general population, likely due to their health-related educational background and greater access to reliable medical information

#### IV. Conclusion And Recommen Dations

This study demonstrates that medical students at Baiturrahmah University generally possess good knowledge and appropriate usage practices regarding retinol. Higher levels were observed among female students and those aged 21 years.

Despite a relatively homogeneous educational background, variations in

knowledge and practice were influenced by individual factors such as personal interest, experience, and information exposure.

Future studies should consider recruiting participants from similar academic levels to reduce variability. Additionally, continuous educational interventions are recommended to promote the safe and effective use of retinol and minimize adverse effects.

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