

Saudi Medical Students' Knowledge and Attitude Toward Psoriasis and Vitiligo: A Cross-Sectional Study

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Abstract

Background: It is imperative that physicians possess the requisite knowledge and an appropriate attitude towards patients with chronic visible skin diseases to reduce social stigmatization and improve patient adherence to treatment.

Aim: This study aimed to explore the knowledge and attitude regarding vitiligo and psoriasis among undergraduate Saudi medical students in Saudi universities.

Materials and Methods: This cross-sectional study was conducted among undergraduate Saudi medical students in Saudi universities. An electronic self-administered questionnaire was distributed via various social media platforms. The questionnaire encompassed five sections, designed to collect data pertaining to demographic characteristics, knowledge about vitiligo and psoriasis, and attitudes towards both diseases.

Results: Of the 958 recipients, 389 participants were determined to be eligible and thus included in the study. Only 10.3% demonstrated a high level of knowledge about psoriasis, while 63.8% exhibited a moderate level, and 26.0% displayed a low level. With regard to knowledge of vitiligo, 19.3% demonstrated a high level, 52.7% exhibited a moderate level, and 28.0% displayed a low level. A positive attitude was observed in 87.7% and 90.7% of respondents, respectively, towards psoriasis and vitiligo. The knowledge level for psoriasis and vitiligo was found to significantly increase with higher academic years ($p < 0.001$). A positive attitude was also significantly associated with higher academic years in psoriasis and vitiligo ($p = 0.003$ and 0.038 , respectively), and was linked to higher knowledge levels ($p < 0.001$) regarding psoriasis ($p = 0.003$) and vitiligo ($p = 0.009$).

Conclusion: There was a correlation between knowledge and attitudes toward vitiligo and psoriasis and academic years. Some gaps in knowledge about both diseases were identified. Modifications to the undergraduate medical curriculum should target the points of defective knowledge and attitude to reach the required levels.

Keywords: attitude; knowledge; medical students; psoriasis; Saudi Arabia; vitiligo

Introduction

Vitiligo and psoriasis are two dermatological diseases that are prevalent in Saudi Arabia, affecting nearly 6% [1] and 5.33% [2], respectively, of the Saudi population.

Vitiligo is one of the most prevalent chronic dermatological conditions, resulting from an autoimmune mechanism targeting melanocytes [3]. Patients with vitiligo present with white skin patches, which commonly affect the hands, face, and exposed regions of the body. In some cases, the depigmented patches are accompanied by pruritus [4,5].

Psoriasis is another prevalent chronic autoimmune disease, typically manifesting with systemic and dermatological symptoms [6]. Psoriasis can be classified into the following five types: plaque, guttate, inverse, pustular, and erythrodermic. Plaque psoriasis (psoriasis vulgaris) is the most common form of psoriasis, affecting approximately 90% of individuals with the condition. It typically presents as red patches covered with white scales. Psoriasis plaques are most frequently observed on the dorsal aspect of the forearms, the plantar surface of the feet, and the scalp. In the case of inverse psoriasis, the red patches are located in the skin folds. Guttate psoriasis presents as drop-shaped cutaneous lesions. The lesions observed in pustular psoriasis are characterized by the presence of small vesicles, which are non-infectious and filled with pus. Erythrodermic psoriasis develops from any of the aforementioned types of psoriasis but differs in that the dermatological eruption is extensive [6,7]. In addition to the cutaneous lesions, the majority of patients with psoriasis present with lesions in the fingernails and/or toenails, manifesting as pits or discoloration [6,7].

Both vitiligo and psoriasis have been linked to emotional distress and social stigmatization (8-10). It is imperative that healthcare professionals demonstrate a positive attitude towards all patients, particularly those who are susceptible to social stigmatization. Such an attitude will reinforce the physician-patient relationship, thereby encouraging patients to seek medical care and enhancing their adherence to treatment [11]. A significant proportion of the social adverse reaction to patients with disfiguring skin diseases is attributable to misconceptions about the nature of the disease and its potential transmission to healthy individuals [12,13]. Consequently, healthcare professionals can play a pivotal role in reducing the social stigma by disseminating accurate and reliable health-related information to patients, their families, and the general public.

The future of medicine depends on medical students gaining a strong understanding of dermatologic conditions, such as vitiligo and psoriasis, and developing positive attitudes toward patients with these conditions. Assessing students' knowledge and attitudes will help identify gaps and improve education and training to ensure they provide effective patient care.

Improving their competence and attitudes will ultimately lead to better patient outcomes. This is expected to result in a reduction in emotional distress, an improvement in treatment adherence, and a decrease in social stigma [11,14]. Therefore, the objective of this study was to explore the knowledge and attitudes of undergraduate Saudi medical students in Saudi universities regarding vitiligo and psoriasis.

Materials and Methods

Study design, area, setting, and date

This cross-sectional survey was conducted among undergraduate Saudi medical students at various Saudi universities.

Inclusion and exclusion criteria

The present study included all Saudi male and female undergraduate medical students from the second to the sixth year at different governmental and private universities in Saudi Arabia. Students with vitiligo or/and psoriasis, those with first-degree relatives diagnosed with vitiligo and/or psoriasis, graduate medical students, non-Saudi medical students, Saudi medical students who are living outside Saudi Arabia, those unwilling to participate, and participants with incomplete data were excluded.

Sample size

The sample size was estimated to be 379, using an online sample size calculator (Raosoft, <http://www.raosoft.com/samplesize.html>) considering a margin of error of 5%, a confidence interval of 95%, a response distribution of 50%, and an average size of nearly 25,000 medical students in Saudi universities according to the Saudi Arabian Ministry of Education.

Sampling technique

All Saudi undergraduate medical students were invited to participate in the study. The participants were selected using a non-probability, convenience sampling technique.

Data collection tool

The data were collected via an electronic, structured, self-administered questionnaire. The questionnaire was designed using Google Forms and disseminated via various social media platforms. The questionnaire was comprised of five sections. The initial section pertained to the participants' sociodemographic data, including age, gender, current place of residence, and academic year. The second and third sections, comprising 15 statements each, addressed the participants' knowledge about psoriasis and vitiligo, respectively. The fourth and fifth sections were designed to elicit the participants' attitudes regarding psoriasis and vitiligo, respectively. Each section comprised eight statements about each condition. Responses to the knowledge-based inquiries were recorded as "yes," "maybe," or "no." A score of one was assigned for a correct response, while an incorrect answer or an answer of "Maybe" was assigned a score of zero. In the attitude sections, points were distributed for questions 1 to 6 as follows: "Yes" (+1), "Maybe" (0), and "No" (-1). In contrast, questions 7 and 8 were scored in a reverse manner. The total score for each participant was calculated by adding together the scores for each question. The participants were classified into three knowledge categories: low knowledge (0 to 5 points), moderate knowledge (6 to 11 points), and high knowledge (12 to 15 points), and into two attitude categories: positive (1 to 8) and negative (-8 to 0). The knowledge and attitude questions were derived from previous studies (15-18). Prior to data collection, a pilot study involving 50 participants was conducted to assess the questionnaire's validity.

Data analysis plan

An Excel spreadsheet was constructed for the purpose of data entry. The statistical analyses were conducted using the R statistical language, version 4.4.0 (19), and the "gtsummary" package, version 1.7.2 (20). Categorical variables were summarized using the appropriate descriptive statistics, namely, counts and percentages. Continuous variables (i.e., total scores) were summarized as medians with interquartile ranges (IQR;

expressed as 25th–75th percentiles) since they did not follow a normal distribution, as observed from the Shapiro-Wilk test and Q-Q plots. Pearson's Chi-square test for independence of observations, as well as the Chi-square test for trend (Cochran-Armitage test for trend), was employed to investigate the associations between the participants' characteristics and their knowledge level and attitude towards psoriasis and vitiligo. Additionally, the Wilcoxon rank sum test was utilized to compare the total score of knowledge between the groups with positive and negative attitudes. The threshold for statistical significance was set at a p-value of less than 0.05.

Results

The questionnaire was distributed to a total of 958 individuals. Of the 958 individuals who received the questionnaire, nine declined to participate, 95 were non-Saudi, 153 were non-medical students, 168 were graduates, six were currently residing outside of Saudi Arabia, 68 had psoriasis or vitiligo, and 70 had a family member who suffered from one of these

illnesses. In total, 389 participants were deemed eligible for inclusion in the study.

Reliability testing for the questionnaire yielded a Cronbach's alpha of 0.785 (Bootstrap 95% CI: 0.749, 0.814) for knowledge about psoriasis and 0.809 (Bootstrap 95% CI: 0.783, 0.831) for knowledge about vitiligo. The Cronbach's alpha values for questions assessing attitude towards psoriasis and vitiligo were 0.817 (Bootstrap 95% CI: 0.787, 0.843) and 0.817 (Bootstrap 95% CI: 0.790, 0.843), respectively. An alpha level of 0.7 or above is indicative of acceptable internal consistency.

The majority of respondents (86.4%) were between the ages of 20 and 24, and approximately two-thirds (69.9%) were female students. Approximately one-third of the respondents were from Riyadh Province (38.6%), whereas 23.9% were from Makkah and 10.8% were from Jazan. The highest percentage of students was in the sixth academic year (29.0%), followed by the fifth year (24.4%) (Table 1).

Characteristic	All participants
	N = 389
Age (years), n (%)	
<i>Below 20 years of age</i>	27 (6.94%)
<i>20 - 24</i>	336 (86.4%)
<i>25 - 29</i>	26 (6.68%)
Gender, n (%)	
<i>Female</i>	272 (69.9%)
<i>Male</i>	117 (30.1%)
Nationality, n (%)	
<i>Saudi</i>	389 (100.0%)
Residence, n (%)	
<i>Inside Saudi Arabia</i>	389 (100.0%)
Province, n (%)	
<i>Riyadh Province</i>	150 (38.6%)
<i>Makkah Province</i>	93 (23.9%)
<i>Jazan Province</i>	42 (10.8%)
<i>Aseer Province</i>	29 (7.46%)
<i>Eastern Province</i>	22 (5.66%)
<i>Al-Baha Province</i>	13 (3.34%)
<i>Al-Madinah Province</i>	10 (2.57%)
<i>Northern Borders Province</i>	9 (2.31%)
<i>Al-Qaseem Province</i>	7 (1.80%)
<i>Hail Province</i>	5 (1.29%)
<i>Najran Province</i>	4 (1.03%)
<i>Tabuk Province</i>	4 (1.03%)
<i>Al-Jouf Province</i>	1 (0.26%)
Faculty, n (%)	
<i>Medical Student</i>	389 (100.0%)
Academic level, n (%)	
<i>Undergraduate</i>	389 (100.0%)
Academic year, n (%)	
<i>Second</i>	83 (21.3%)
<i>Third</i>	47 (12.1%)
<i>Fourth</i>	51 (13.1%)
<i>Fifth</i>	95 (24.4%)
<i>Sixth</i>	113 (29.0%)

Characteristic	All participants
	N = 389
Have the disease? n (%)	
No	389 (100.0%)
Have a diseased relative? n (%)	
No	389 (100.0%)

Table 1: Sociodemographic characteristics of the participants (n = 389)

Over 60% of respondents correctly identified psoriasis as an autoimmune, non-contagious, hygiene-unrelated condition that affects the skin and social life. However, less than 40% recognized its hereditary nature or association with vesicles, internal organs, or cancer risk. For vitiligo, most

students correctly addressed hygiene, food, spread, skin impact, and social life. Knowledge gaps included misconceptions about melasma and pityriasis as vitiligo subtypes, psychological stress as a trigger, and the potential for a complete cure (Table 2).

Questions		Incorrect	Correct
Psoriasis			
Is “plaque” the primary lesion of psoriasis?	n (%)	185 (47.6%)	204 (52.4%)
Is psoriasis a hereditary disease?	n (%)	264 (67.9%)	125 (32.1%)
Is psoriasis an autoimmune disease?	n (%)	144 (37.0%)	245 (63.0%)
Is impetigo a variant type of psoriasis?	n (%)	220 (56.6%)	169 (43.4%)
Is psoriasis hygiene-related?	n (%)	149 (38.3%)	240 (61.7%)
Can psoriasis be associated with “vesicles” & “bullae”?	n (%)	302 (77.6%)	87 (22.4%)
Is psoriasis caused by certain foods?	n (%)	199 (51.2%)	190 (48.8%)
Is psoriasis triggered by psychological stress?	n (%)	173 (44.5%)	216 (55.5%)
Is psoriasis contagious?	n (%)	132 (33.9%)	257 (66.1%)
Does psoriasis affect the social life of patients?	n (%)	128 (32.9%)	261 (67.1%)
Does psoriasis affect the skin?	n (%)	86 (22.1%)	303 (77.9%)
Does psoriasis affect internal organs?	n (%)	306 (78.7%)	83 (21.3%)
Does psoriasis cause skin cancer?	n (%)	236 (60.7%)	153 (39.3%)
Does psoriasis lead to death?	n (%)	175 (45.0%)	214 (55.0%)
Can Psoriasis be cured?	n (%)	231 (59.4%)	158 (40.6%)
Vitiligo			
Are “macules” & “patches” the primary lesions of Vitiligo?	n (%)	191 (49.1%)	198 (50.9%)
Is vitiligo a hereditary disease?	N (%)	233 (59.9%)	156 (40.1%)
Is vitiligo an autoimmune disease?	N (%)	181 (46.5%)	208 (53.5%)
Are melasma & pityriasis versicolor subtypes of vitiligo?	N (%)	265 (68.1%)	124 (31.9%)
Is vitiligo hygiene-related?	N (%)	132 (33.9%)	257 (66.1%)
Can vitiligo be associated with “papules” & “pustules”?	N (%)	219 (56.3%)	170 (43.7%)
Is vitiligo caused by certain foods?	N (%)	154 (39.6%)	235 (60.4%)
Is vitiligo triggered by psychological stress?	N (%)	262 (67.4%)	127 (32.6%)
Is vitiligo contagious?	N (%)	128 (32.9%)	261 (67.1%)
Does vitiligo affect the social life of patients?	N (%)	148 (38.0%)	241 (62.0%)
Does vitiligo affect the skin?	N (%)	104 (26.7%)	285 (73.3%)
Does vitiligo affect internal organs?	N (%)	190 (48.8%)	199 (51.2%)
Does vitiligo predispose to skin cancer?	N (%)	210 (54.0%)	179 (46.0%)
Does vitiligo lead to death?	N (%)	168 (43.2%)	221 (56.8%)
Can vitiligo be cured?	N (%)	244 (62.7%)	145 (37.3%)

Table 2: Participants’ responses to knowledge questions (n = 389)

With regard to the participants' attitudes toward psoriasis and vitiligo, the majority exhibited a positive attitude. The only exception was their attitude towards avoiding marriage to individuals with psoriasis or

vitiligo, where only 38.8% and 43.2%, respectively, indicated that they would not avoid the marriage (Table 3).

Characteristic		No	Maybe	Yes
Psoriasis				
I would shake hands with a patient with Psoriasis	n (%)	41 (10.5%)	75 (19.3%)	273 (70.2%)
I would sit beside a patient with Psoriasis	n (%)	25 (6.43%)	89 (22.9%)	275 (70.7%)
I would share food with a patient with Psoriasis	n (%)	55 (14.1%)	95 (24.4%)	239 (61.4%)
I would like to be served by a patient with Psoriasis	n (%)	50 (12.9%)	100 (25.7%)	239 (61.4%)
I would eat food prepared by a patient with Psoriasis	n (%)	62 (15.9%)	100 (25.7%)	227 (58.4%)
I would hire a patient with Psoriasis	n (%)	42 (10.8%)	105 (27.0%)	242 (62.2%)
I would avoid marriage to a patient with Psoriasis	n (%)	151 (38.8%)	140 (36.0%)	98 (25.2%)
I would want to isolate a patient with Psoriasis	n (%)	244 (62.7%)	85 (21.9%)	60 (15.4%)
Vitiligo				
I would shake hands with a patient with vitiligo	N (%)	28 (7.20%)	65 (16.7%)	296 (76.1%)
I would sit beside a patient with vitiligo	N (%)	23 (5.91%)	85 (21.9%)	281 (72.2%)
I would share food with a patient with vitiligo	N (%)	34 (8.74%)	80 (20.6%)	275 (70.7%)
I would like to be served by a patient with vitiligo	N (%)	31 (7.97%)	88 (22.6%)	270 (69.4%)
I would eat food prepared by a patient with vitiligo	N (%)	33 (8.48%)	82 (21.1%)	274 (70.4%)
I would hire a patient with vitiligo	N (%)	29 (7.46%)	90 (23.1%)	270 (69.4%)
I would avoid marriage to a patient with vitiligo	N (%)	168 (43.2%)	116 (29.8%)	105 (27.0%)
I would want to isolate a patient with vitiligo	N (%)	234 (60.2%)	83 (21.3%)	72 (18.5%)

Table 3: Participants' attitude towards psoriasis and vitiligo (n = 389)

The total scores for knowledge about psoriasis and vitiligo were calculated, and the respondents were subsequently categorized based on their scores. A mere 10.3% demonstrated a high level of knowledge about psoriasis, while 63.8% exhibited a moderate level and 26.0% displayed a low level. With regard to knowledge about vitiligo, 19.3% of respondents

demonstrated a high level of understanding, while 52.7% exhibited a moderate level and 28.0% displayed a low level. With respect to attitudes toward psoriasis and vitiligo, 87.7% and 90.7% of respondents, respectively, exhibited a positive attitude (Table 4).

Characteristic	All participants
	N = 389
Total knowledge score for psoriasis	
Median [IQR]	8.0 [5.0, 10.0]
Range	0.0 to 14.0
Knowledge level about psoriasis, n (%)	
Low	101 (26.0%)
Moderate	248 (63.8%)
High	40 (10.3%)
Total knowledge score for vitiligo	
Median [IQR]	8.0 [5.0, 11.0]
Range	0.0 to 14.0
Knowledge level about vitiligo, n (%)	
Low	109 (28.0%)
Moderate	205 (52.7%)
High	75 (19.3%)
Total attitude score for psoriasis	
Median [IQR]	4.0 [0.0, 7.0]
Range	-7.0 to 8.0
Attitude towards psoriasis, n (%)	
Negative	48 (12.3%)
Positive	341 (87.7%)
Total attitude score for vitiligo	

Characteristic	All participants
	N = 389
Median [IQR]	5.0 [1.0, 8.0]
Range	-6.0 to 8.0
Attitude towards vitiligo, n (%)	
Negative	36 (9.25%)
Positive	353 (90.7%)

Table 4: Total scores for knowledge and attitude in the included participants (n = 389)

A comparison of the knowledge levels in the case of psoriasis revealed no significant association with age or gender ($p > 0.05$). However, knowledge level demonstrated a significant trend of increase with higher academic year ($p < 0.001$). With regard to vitiligo, no significant

association was observed between gender and knowledge level ($p > 0.05$). However, a notable trend emerged, indicating that individuals of advanced age and those in higher academic years demonstrated a higher level of knowledge ($p = 0.018$ and <0.001 , respectively; Table 5).

Characteristic	Knowledge level			p-value ¹
	Low	Moderate	High	
Psoriasis	N = 101	N = 248	N = 40	
Age (years), n (%)				0.391* ²
Below 20 years of age	13 (12.9%)	14 (5.65%)	0 (0%)	
20 - 24	78 (77.2%)	222 (89.5%)	36 (90.0%)	
25 - 29	10 (9.90%)	12 (4.84%)	4 (10.0%)	
Gender, n (%)				0.360 ³
Female	76 (75.2%)	170 (68.5%)	26 (65.0%)	
Male	25 (24.8%)	78 (31.5%)	14 (35.0%)	
Academic year, n (%)				<0.001* ²
Second	39 (38.6%)	44 (17.7%)	0 (0%)	
Third	17 (16.8%)	29 (11.7%)	1 (2.50%)	
Fourth	19 (18.8%)	26 (10.5%)	6 (15.0%)	
Fifth	16 (15.8%)	70 (28.2%)	9 (22.5%)	
Sixth	10 (9.90%)	79 (31.9%)	24 (60.0%)	
Vitiligo	N = 109	N = 205	N = 75	
Age (years), n (%)				0.018* ²
Below 20 years of age	15 (13.8%)	11 (5.37%)	1 (1.33%)	
20 - 24	87 (79.8%)	180 (87.8%)	69 (92.0%)	
25 - 29	7 (6.42%)	14 (6.83%)	5 (6.67%)	
Gender, n (%)				0.908 ³
Female	78 (71.6%)	142 (69.3%)	52 (69.3%)	
Male	31 (28.4%)	63 (30.7%)	23 (30.7%)	
Academic year, n (%)				<0.001* ²
Second	46 (42.2%)	37 (18.0%)	0 (0%)	
Third	17 (15.6%)	26 (12.7%)	4 (5.33%)	
Fourth	15 (13.8%)	31 (15.1%)	5 (6.67%)	
Fifth	18 (16.5%)	54 (26.3%)	23 (30.7%)	
Sixth	13 (11.9%)	57 (27.8%)	43 (57.3%)	

¹ * significant at $p < 0.05$

² Chi-squared tests for trend in proportion (i.e., Cochran-Armitage trend test)

³ Pearson's Chi-squared test

Table 5: Sociodemographic factors associated with high knowledge about psoriasis and vitiligo (n = 389)

Additionally, comparisons were conducted between groups of positive and negative attitudes. The analysis revealed that age and gender were not significantly associated with the respondents' attitudes in the context of both psoriasis and vitiligo ($p > 0.05$). A significant trend was observed for a positive attitude with higher academic years in both psoriasis and

vitiligo ($p = 0.003$ and 0.038 , respectively). The group with positive attitudes demonstrated significantly higher knowledge scores for both diseases ($p < 0.001$), as evidenced by a significant trend for a higher knowledge level in those with positive attitudes towards psoriasis ($p = 0.003$) and vitiligo ($p = 0.009$; Table 6).

Variables	Negative Attitude	Positive Attitude	p-value ¹
Psoriasis	N = 48	N = 341	
Age (years), n (%)			0.105 ²
<i>Below 20 years of age</i>	6 (12.5%)	21 (6.16%)	
<i>20 - 24</i>	40 (83.3%)	296 (86.8%)	
<i>25 - 29</i>	2 (4.17%)	24 (7.04%)	
Gender, n (%)			0.231 ³
<i>Female</i>	30 (62.5%)	242 (71.0%)	
<i>Male</i>	18 (37.5%)	99 (29.0%)	
Academic year, n (%)			0.003* ²
<i>Second</i>	14 (29.2%)	69 (20.2%)	
<i>Third</i>	11 (22.9%)	36 (10.6%)	
<i>Fourth</i>	7 (14.6%)	44 (12.9%)	
<i>Fifth</i>	9 (18.8%)	86 (25.2%)	
<i>Sixth</i>	7 (14.6%)	106 (31.1%)	
Total knowledge score			<0.001* ⁴
<i>Median [IQR] (Range)</i>	6.0 [4.0, 8.0] (0.0 to 11.0)	8.0 [6.0, 10.0] (0.0 to 14.0)	
Knowledge level, n (%)			0.003* ²
<i>Low</i>	19 (39.6%)	82 (24.0%)	
<i>Moderate</i>	29 (60.4%)	219 (64.2%)	
<i>High</i>	0 (0%)	40 (11.7%)	
Vitiligo	N = 36	N = 353	
Age (years), n (%)			0.168 ²
<i>Below 20 years of age</i>	5 (13.9%)	22 (6.23%)	
<i>20 - 24</i>	29 (80.6%)	307 (87.0%)	
<i>25 - 29</i>	2 (5.56%)	24 (6.80%)	
Gender, n (%)			0.407 ³
<i>Female</i>	23 (63.9%)	249 (70.5%)	
<i>Male</i>	13 (36.1%)	104 (29.5%)	
Academic year, n (%)			0.038* ²
<i>Second</i>	12 (33.3%)	71 (20.1%)	
<i>Third</i>	7 (19.4%)	40 (11.3%)	
<i>Fourth</i>	3 (8.33%)	48 (13.6%)	
<i>Fifth</i>	5 (13.9%)	90 (25.5%)	
<i>Sixth</i>	9 (25.0%)	104 (29.5%)	
Total knowledge score			<0.001* ⁴
<i>Median [IQR] (Range)</i>	6.0 [3.5, 8.0] (1.0 to 13.0)	9.0 [5.0, 11.0] (0.0 to 14.0)	
Knowledge level, n (%)			0.009* ³
<i>Low</i>	17 (47.2%)	92 (26.1%)	
<i>Moderate</i>	17 (47.2%)	188 (53.3%)	
<i>High</i>	2 (5.56%)	73 (20.7%)	

IQR: interquartile range (25th, 75th percentiles); ¹ *p<0.05; ² Chi-squared test for trend in proportion (i.e., Cochran-Armitage trend test); ³ Pearson's Chi-squared test; ⁴ Wilcoxon rank sum test

Table 6: Sociodemographic factors and knowledge affecting participants' attitude towards psoriasis and vitiligo (n = 389)

Discussion

Patients with chronic visible skin diseases are subjected to social stigmatization, which has a markedly deleterious impact on their quality of life [8-10,12,13]. It is incumbent upon physicians to play a pivotal role in eliminating societal misconceptions and altering the negative attitude towards these patients. Therefore, it is imperative that physicians acquire

the requisite knowledge and adopt an appropriate attitude during their education and training in order to effectively fulfill their role. However, there is a paucity of studies that investigate the knowledge and attitude among medical students regarding chronic skin diseases [13,21], as the majority of research is directed towards exploring those of laypeople. The present study was conducted to investigate the knowledge and attitude

regarding vitiligo and psoriasis among undergraduate Saudi medical students in Saudi universities.

Most participants demonstrated good knowledge of vitiligo and psoriasis, particularly their etiology, non-contagious nature, and social impact. However, gaps were noted in understanding the hereditary aspects of psoriasis, vesicle development, organ involvement and cancer risk, as well as vitiligo subtypes, psychological triggers and curability. Satisfactory knowledge was reported by 28% for vitiligo and 26% for psoriasis, which is partially consistent with previous studies.

In the study by Nayyar et al. [21], a total of 351 undergraduate medical students at an Indian university were included in an effort to assess their knowledge and attitudes regarding vitiligo and psoriasis. As observed in our own findings, Nayyar and colleagues [21] similarly reported that the majority of their student cohort demonstrated an acceptable level of knowledge regarding vitiligo and psoriasis. Furthermore, the study revealed that over two-thirds of the students were aware that both vitiligo and psoriasis are immune system disorders that are not contagious or caused by a lack of hygiene. Additionally, only 55.8% of students demonstrated awareness that psoriasis has a systemic impact. However, 42% and 36.5% of students in the study by Nayyar et al. [21] incorrectly believed that vitiligo and psoriasis, respectively, are hereditary diseases. Furthermore, a higher percentage of their respondents (76.92% and 85.19%) identified the exacerbating effect of psychological stress on vitiligo and psoriasis, respectively.

These findings differ from those reported by Pearl et al. [13], who included 187 medical students at a single medical institution in the United States and 201 layperson participants. In their study, Pearl et al. [13] identified the most prevalent misconceptions among medical students regarding psoriasis. These included the beliefs that psoriasis lesions are not painful, that the disease is not serious or detrimental to physical health, and that a complete cure is possible.

Most participants exhibited a positive attitude towards vitiligo (90.7%) and psoriasis (87.7%). However, only 38.8% and 43.2% of our participants indicated that they would not avoid marriage with a patient with psoriasis or vitiligo, respectively.

Our findings demonstrate some similarities and few differences with those reported by Pearl et al. [13] and Nayyar et al. [21].

Pearl et al. [13], discovered that the social distance item with the highest frequency among medical students was avoiding dating a person with psoriasis, which was identified in 28.9% of cases. The frequency of this negative item was markedly higher than the frequency of other negative attitudes, including shaking hands (12%), sharing a meal (6%), or being friends (3%). Overall, the attitude of most medical students was generally positive towards patients with psoriasis and far more favorable than the attitude elicited by laypersons.

In the study conducted by Nayyar et al. [21], 87.7% and 72.4% of the students surveyed demonstrated positive attitudes toward vitiligo and psoriasis, respectively. Nayyar et al. [21], discovered that the majority of respondents expressed empathy for the patients and engaged in various forms of contact, including shaking hands, eating or sharing food prepared by the patients, employing them, and avoiding staring at them. Similarly, the respondents in the aforementioned study indicated that approximately 34 to 44% of them would decline marriage to an individual with vitiligo or psoriasis, respectively. The reasons behind this refusal were not explored in our study or the study by Nayyar et al. [21]. However, it can be postulated that this reluctance may be partially attributable to the hereditary nature of the two diseases and the fear that the disease will manifest in future offspring. This also explains why

patients with these conditions face difficulties in establishing relationships and engagement [22].

The level of knowledge regarding vitiligo and psoriasis showed no significant association with gender. However, it exhibited a notable increase in higher academic years. This finding partially agrees with the observations of Nayyar et al. [21], who reported a significant association between current academic level and psoriasis knowledge but not with vitiligo knowledge.

Regarding the participants' attitudes, a positive attitude towards patients with psoriasis and vitiligo was not found to be significantly related to age or gender. A positive attitude towards psoriasis and vitiligo was significantly associated with higher academic years ($p = 0.003$ and 0.038 , respectively). This may be explained by the higher knowledge acquired in advanced academic years and the completion of dermatological rounds. These results partially accord with those of Nayyar et al. [21], who found that the current academic year was significantly linked to a positive attitude regarding vitiligo but not psoriasis.

In contrast, Pearl et al. [13], indicated that significant predictors of more positive attitudes among medical students toward patients with psoriasis included older age, female gender, and completion of a dermatology rotation.

Furthermore, a higher level of knowledge was found to be significantly associated with more positive attitudes towards psoriasis ($p = 0.003$) and vitiligo ($p = 0.009$). A comparable relationship was observed by Nayyar et al. [21], whereby a high level of knowledge about psoriasis and vitiligo was associated with positive attitudes in 80.5% and 90.1% of their students, respectively. This association highlights the influence of accurate knowledge on attitudes and demonstrates that health education initiatives can influence attitudes by challenging the misconceptions surrounding the nature of chronic visible skin diseases.

Strengths and Limitations

The present study had several strengths, including an adequate sample size. In addition, the study revealed knowledge gaps and misconceptions that highlight the importance of modifying curricula and medical student training.

There were some discrepancies between the results of our survey and those of other studies. These discrepancies may be attributed to differences in the curricula implemented in the different institutions from which the students were recruited, as well as differences in the formulation of questions and the tools used to assess knowledge and attitude. In addition, the recruitment of participants employed a convenience sampling technique, which may have resulted in the inclusion of participants with biased attitudes or characteristics that could influence their responses to the questionnaire. Therefore, future studies should attempt to randomly select participants.

Conclusions

In conclusion, the knowledge and attitudes of the participants towards vitiligo and psoriasis correlated with their academic years. Some gaps in knowledge about both diseases were identified. Modifications in the undergraduate medical curricula should target the points of defective knowledge and attitude to reach the required levels.

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