



## KNOWLEDGE OF COMMON DERMATOLOGICAL DISORDERS AMONG PRIMARY HEALTH CARE PHYSICIANS IN JEDDAH IN THE KINGDOM OF SAUDI ARABIA IN 2014

Ahmad Abdullah Alkatheri\*

Family Medicine Department, King Abdulaziz University Hospital, Jeddah, Saudi Arabia

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#### Key words:

Abbreviation	Description
MOH	Ministry of Health
GPs	General Practitioners
PHC	Primary Health Care
MBBS	Bachelor of Medicine and Bachelor of Surgery
PHCPs	Primary Health Care Physicians
PHCCs	Primary Health Care Centers

### ABSTRACT

Skin conditions are the most common reason for patients seeking consultations in general practice, making general practitioners the first point of clinical contact for persons with skin conditions. A cross-sectional study was conducted at Ministry of Health (MOH) primary healthcare centers (PHCCs) in Jeddah city in 2014 to assess the knowledge level of common dermatological disorder, the sample size was estimated at 210, but the actual number of randomly selected participants in the study was 233. This study included 212 PHCPs out of 233, giving a response rate of (91%), most of the participants were general practitioners (GPs) 132 (62.2%). Approximately 50% of the PHCPs were between 30 and 40 years of age, and 156 (77.8%) had graduated after the year 2000. Most of them 178 (84%) were Saudis, and the majority 134 (63.2%) were males. the knowledge level in 199 (93.8%) of the study PHCPs regarding common dermatological disorders was considered to be insufficient (less than 60%), the study did not find any significant statistical association between the knowledge of the study PHCPs and their previous attendance in dermatological educational activities ( $P = 0.87$ ). The PHCPs' knowledge regarding common dermatological disorders was insufficient, indicating the need to improve such knowledge among them, filling the dermatology knowledge gaps of PHCPs is crucial, since they are the first doctors consulted by patients having skin problems in a PHC setting.

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### INTRODUCTION

Although skin diseases are rarely life threatening, their moderate morbidity rate multiplied by their high prevalence rate places skin diseases among the top four chronic illness groups when entire communities are considered.<sup>[1]</sup> Unlike most other medical specialties, the specialty of dermatology has between 1,000 and 2,000 diseases associated with it. However, fewer than ten categories of skin disorders account for over 70% of dermatological consultations: skin cancer, acne, atopic dermatitis, psoriasis, viral warts, infective skin disorders, benign tumors and vascular lesions, leg ulcerations, and contact dermatitis.<sup>[1]</sup> Disfiguring skin diseases in visible sites, such as the face (e.g. acne), can result in depression, poorer job prospects, and a loss of self-esteem. Indeed, the quality-of-life scores for people with skin diseases are often worse than for those people with more traditional "medical" disorders.<sup>[2]</sup>

Skin conditions are the most common reason for patients seeking consultations in general practice, making general practitioners the first point of clinical contact for persons with skin conditions.<sup>[7]</sup> Although skin disorders are the most common reason for presentation to a general practitioner with a new problem, the level of dermatology training and knowledge of primary care healthcare professionals is

generally limited.<sup>[3]</sup> However, primary healthcare physicians (PHCPs) should have a good knowledge of dermatological diseases, because a true diagnosis, proper treatment, and patient participation are vital components of skin disease management.<sup>[4]</sup> With the correct knowledge, PHCPs can control the most common skin diseases, promote the management of common dermatological problems, and recognize those cases that require a further referral, which may decrease the rate of hospital visits and reduce overall costs.<sup>[5]</sup> As medical knowledge grows, family physicians face ever-increasing challenges in the diagnosis and treatment of skin disorders. They should be skilled in disease recognition and management, as well as in understanding when to refer patients to the appropriate specialist.<sup>[6]</sup> This study aimed to assess the knowledge of PHCPs regarding common dermatological disorders in Jeddah, Saudi Arabia, and to correlate the level of knowledge with the background characteristics (and other possible relevant factors) of the studied physicians.

### MATERIALS AND METHODS

A cross-sectional study was conducted at Ministry of Health (MOH) primary healthcare centers (PHCCs) in Jeddah city in 2014. There were 45 centers at the time of the study, divided

over five health sectors as follows: 12 PHCCs in the North-East Health Sector, 10 PHCCs in the North-West Health Sector, 8 PHCCs in the Middle Health Sector, 8 PHCCs in the South-West Health Sector, and 8 PHCCs in the South-East Health Sector. During the period of this study, a total of 468 PHCPs were working in the PHCCs in Jeddah. We excluded dentists and those physicians who were not on duty during the data collection period.

The Raosoft software package (version 20) was used to calculate the sample size. In order to reach the appropriate sample size at the 95% confidence level, with an acceptable error of 5%, 210 physicians should have been enrolled.<sup>[10]</sup> However, we enrolled 10% more subjects to compensate for refusals, so the calculated sample size reached 233 PHCPs. The list of PHCCs was taken from the Jeddah Public Health Administration and entered into Microsoft Excel 2010 to select centers randomly, until reaching the target sample size (n=233).

A self-administered two-part questionnaire was used in this research. The first part was used to assess the participants' demographic/personal characteristics, including the age, sex, nationality, year of obtaining a medical education (MBBS), qualification, and profession. The second part was derived from a study conducted in 2006 by Gorgulu *et al.*<sup>[4]</sup> to assess the PHCPs' knowledge regarding common dermatological disorders, with minor modifications (i.e. the omission of 3 questions on skin diseases rarely seen, such as Behçet's disease). We added several other possibly relevant factors that may affect the level of the participants' knowledge.

The researcher and the data collectors distributed the self-administered questionnaire to the target population in their workplaces. The data collectors were carefully selected and trained regarding the questionnaire distribution. Via direct contact with them, the researcher was available to clarify any issues. The answered questionnaires were collected soon after the encounter.

### Statistical Analysis

The data were coded and entered into a personal computer after being verified by hand, and SPSS version 20 was used for the analysis. Descriptive statistics were applied using the frequency and percentage, since all of the data were categorized. Analytical statistics were applied using a chi-squared test for determining the difference or association between two categorical variables. Significance was defined as a p-value < 0.05.

The physicians' knowledge regarding common skin disorders was categorized according to the mean knowledge score into four categories: insufficient (mean score < 60%), good (mean score 60–75%), very good (mean score 75–85%), and excellent (mean score > 85%). The researcher considered those individuals with a mean knowledge score above 60% to have sufficient knowledge for the purposes of the statistical analysis. A pilot study was conducted over one PHCC to test if the questionnaire was understandable and acceptable. The questionnaires collected from this center were omitted from the main study.

Ethical approval was provided officially by the Research Committee of the Joint Program of Family and Community Medicine. In addition, a consent letter was obtained from the Public Health Administration in Jeddah to conduct the study in

the selected PHCCs. Verbal consent was obtained from the PHCPs participating in this study, and confidentiality and privacy were guaranteed for all of the participants. This study was carried out at the full expense of the researcher.

## RESULTS

This study included 212 PHCPs out of 233 who were invited to participate, giving a response rate of 91%. The demographic/personal characteristics of the study physicians showed that 62.3% of the participants were general practitioners (GPs). Approximately 50% of the PHCPs were between 30 and 40 years of age, and 77.8% had graduated after the year 2000. Most of them (84%) were Saudis, and the majority (63.2%) were males (Table 2).

Of the participants, 8.69% had participated in educational activities (e.g. lectures, group discussions, seminars) about common dermatological disorders. More than two-thirds of them (72.2%) felt that they were competent, to some extent, to manage a patient with a skin disorder, while only (11.3%) felt very competent. The remaining (16.5%) felt incompetent to manage a patient with a skin disorder (Figure 1). Moreover, 72.2% of the participants admitted that a lack of knowledge was the main reason that they felt incompetent to manage a skin disorder, while 25.9% admitted that they felt incompetent due to a lack of skills (Table 3).

As shown in Table 1, the majority of the PHCPs (about 91%) knew that ultraviolet radiation (UV) is involved in the etiology of skin cancer, and that decubitus ulcerations in patients are caused by an insufficient number of positional changes. A high proportion of them (80.7%) also knew that antihistamine drugs affect all symptoms related to itching, and 75.9% knew that blisters and scar tissue point to severe burns in burn patients. A similar proportion of the PHCPs (64.6% and 62.3%, respectively) knew that angioedema in urticaria requires an emergency evaluation of the patient, and that scabies is characterized by itching at night.

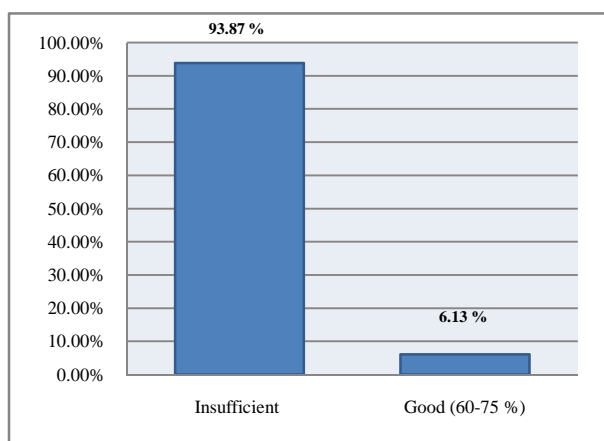
Only 27.4% of the participants did not correctly agree that fungal diseases of the foot are always itchy, and that psoriasis may infect others via direct contact at a rate of approximately 20%. In addition, only 28.3% did not correctly agree that moisturizing the feet is as important as using medications for the prevention of tinea pedis. Very few of the PHCPs (5.2%) did not correctly agree that following the blood glucose is necessary while treating a patient with systemic steroids because they cause a decrease in the blood glucose levels.

Unfortunately, many of the questions were answered with "have no idea," as follows: viridans streptococci are the causative factor for vitiligo (84.5%), topical steroids provide a speedy recovery in cases of folliculitis (71.7%), powerful topical steroids must be used for the inguinal area and face because of the insufficient effect (71.2%), air-circulated bed use is the proposed cause for decubitus ulceration in patients (71.2%), and systemic steroids provide a speedy recovery in cases of psoriasis (61.4%).(Table 1)

Overall, the knowledge level in 93.9% of the study PHCPs regarding common dermatological disorders was considered to be insufficient (less than 60%) (Figure1).

**Table 1** The proportions of PHCPs who gave correct, wrong, or “do not know” responses to each question that assessed their knowledge regarding common dermatological diseases and their therapies.

Question	Correct response	Classification of PHCPs by answer category		
		% correct	% wrong	% did not know
1) All skin disorders are established in internal organs that cause the disorder.	False	53.3	30.7	16
2) Acne has a close relationship with a German diet.	False	13.7	64.2	22.1
3) Antihistamine drugs affect all itch-like symptoms.	True	80.7	9.9	9.4
4) Steroids may have side effects with local use.	True	51.4	5.7	42.9
5) Psoriasis may infect others with direct contact at a rate of approximately 20%.	False	27.4	13.2	59.4
6) Topical steroids provide a speedy recovery in cases of folliculitis.	False	4.7	23.6	71.7
7) Angioedema in urticaria requires an emergency evaluation of the patient.	True	64.6	3.3	32.1
8) The causative factor in vitiligo is viridans streptococcus.	False	4.7	10.8	84.5
9) Scabies is characterized by night itching.	True	62.3	15.6	22.1
10) Urticaria is caused by medication, infection, or food.	True	41	5.2	53.8
11) Systemic steroids provide a speedy recovery in cases of psoriasis.	False	10.8	27.8	61.4
12) Powerful topical steroids should be used for the face and inguinal region because of the insufficient effect.	False	5.7	23.1	71.2
13) UV radiation is involved in the etiology of skin cancer.	True	91.5	3.8	4.7
14) Moisturizing the feet is as important as medication for the prevention of tinea pedis.	False	28.3	60.4	11.3
15) Fungal diseases of the foot are always itchy.	False	27.4	60.4	12.2
16) Decubitus ulcerations occur when a patient does not undergo enough positional changes.	True	91	5.7	3.3
17) An air-circulated bed should be used in patients with decubitus ulcerations.	True	23.6	5.2	71.2
18) Following the blood glucose is necessary because systemic steroids decrease the blood glucose levels.	False	5.2	66.5	28.3
19) The most frequent cause of male-type hair loss is vitamin insufficiency.	False	44.3	21.7	34
20) Applying heat to an acute inflammatory region facilitates the recovery.	False	25	39.6	35.4
21) Blisters and scar tissue suggest severe burns in burn patients.	True	75.9	16	8.1



**Figure 1** Knowledge levels regarding common dermatological disorders among the participating PHCPs.

Table 2 shows that there were no statistically significant differences between the common dermatological diseases knowledge score and the different age groups, genders, nationalities, medical education years (MBBS), or professions. Moreover, it is evident from Table 3 that there were no statistically significant associations between the dermatological knowledge scores of the PHCPs who attended the dermatological educational activities (e.g. lectures, group discussions, and seminars), those who thought that PHCPs can play important roles in the management of common skin disorders, or with those who felt a good degree of competence in managing patients with common dermatological disorders.

**DISCUSSION**

A high response rate of 91% was obtained in this study, which could be attributed to the fact that the questionnaires were

**Table 2** Demographic/personal characteristics of the study PHCPs associated with their knowledge regarding common dermatological disorders.

Factor	Knowledge score				P-value
	Good		Insufficient		
	No.	%	No.	%	
<b>Age (in years)</b>					
< 30	3	1.4	39	18.4	
30 – 40	5	2.4	101	47.6	
41 – 50	3	1.4	52	24.5	0.2
> 50	2	0.9	7	3.3	NS
<b>Gender</b>					
Male	10	4.7	124	58.5	0.29
Female	3	1.4	75	35.4	NS
<b>Nationality</b>					
Saudi	9	4.2	169	79.7	0.135
Non-Saudi	4	1.9	30	4.2	NS
<b>Year of medical education</b>					
Before 2000	4	1.9	43	20.2	0.441
After 2000	9	4.2	156	73.6	NS
<b>Profession</b>					
General practitioner	8	3.8	124	58.5	
Family medicine resident	4	1.9	28	13.2	
Family medicine specialist	1	0.5	37	17.5	0.294
Family medicine consultant	0	0	10	4.7	NS

NS=not significant

**Table 3** Possible relevant factors associated with the level of dermatological knowledge score of the participating PHCPs.

Factor	Knowledge score				P-value
	Good		Insufficient		
	No.	%	No.	%	
Did you participate in educational activities?					0.87
Yes	1	0.5	18	8.5	NS
No	12	5.7	181	85.4	
What is your reason for incompetence in managing skin disorders?					0.21
Lack of knowledge	13	5.7	149	72	NS
Lack of skills	15	6	12	5.7	
Negative attitude	10	4.8	13	5.8	
How competent do you feel in managing skin disorders?					
Very competent	2	0.9	22	10.4	
Competent to some extent	9	4.2	144	67.9	0.89
Incompetent	2	0.9	33	15.6	NS

NS=not significant

delivered to the participants directly at their workplaces. In addition, they were collected by the researcher at the same time.

The demographic/personal characteristics of the study PHCPs were a bit unexpected, since most of the participants were males (63.2%) rather than females (36.8%). This could be because the male physicians might have been easier to reach than the females, due to the male researcher's difficulty in entering the female sections of the PHCCs. It was easier to begin the questionnaire distribution in the male sections of the PHCCs.

Our results showed that about 94% of the study PHCPs had low scores (less than 60%) in their knowledge about common dermatological disorders. The evidence from many studies has pointed to a significant lack of knowledge on the subject.<sup>[34-38]</sup> Further investigation of the PHCPs' lack of knowledge regarding certain common dermatological problems, such as acne vulgaris, revealed that most of the physicians in our study (64.2%) did not answer the questions correctly. A similar finding was obtained by Al-Shobaili, when he found that the PHCPs in the Qassim region had inadequate knowledge and practice in the management of acne.<sup>[9]</sup> Another study conducted in Croatia to evaluate the health beliefs and knowledge of acne among acne patients and family physicians found that the overall knowledge level about the causes, natural course, and therapy was very low.<sup>[12]</sup> Because acne vulgaris is considered to be one of the most common dermatological disorders, a randomized controlled trial of 97 high school students suggested that patients should be educated about their illness. That trial showed that Internet-based patient education appeared to be an effective method for improving acne knowledge among adolescents.<sup>[13]</sup>

The PHCPs in our study were also asked if psoriasis was an infectious disease or not, and 59% marked the option of "have no idea." In addition, 13% answered incorrectly, giving a total of 72% who could be considered to have poor knowledge on the subject. Similarly, Nelson *et al.* found that GPs need to improve both their skills and knowledge in the assessment and management of psoriasis.<sup>[14]</sup>

With regard to vitiligo, a very high proportion (95.2%) of our PHCPs had poor knowledge (84.4% had no idea, 10.8% gave incorrect answers). An almost similar proportion (87%) of students in the study conducted by Gorgulo *et al.* in Turkey marked the option "have no idea" for the question on the cause of vitiligo.<sup>[4]</sup>

The question which proposed that scabies is characterized by night itching was answered correctly at a rate of 62.3%. This result was satisfying when compared with a survey conducted among dermatologists and GPs in Belgium to explore their knowledge of scabies. The survey concluded that the scores on the knowledge test were of an acceptable level in both GPs and dermatologists.<sup>[15]</sup>

This universal lack of dermatological knowledge among physicians can be explained by minimal or absent factual training, with much of the education being of the didactic, lecture-based style.<sup>[35]</sup> In this context, Solomon *et al.* emphasized the need for the reevaluation of the dermatology curriculum in medical schools and family practice residencies.<sup>[16]</sup>

Moreover, when the experience of PHCPs in the diagnosis and management of skin disorders was compared with that of dermatologists, it was found that despite the fact that most visits for skin disease were managed by primary care physicians, these doctors treated few cases of individual skin conditions. Accordingly, that study recommended that this finding must be considered in decisions about the delivery of dermatological healthcare services, and in the future planning of educational programs designed to improve dermatological care.<sup>[17]</sup>

Our study did not find any significant statistical association between the knowledge of the study PHCPs and their previous attendance in dermatological educational activities. In contrast, Al-Hoqail *et al.* found that those PHCPs who had a short period of clinical dermatological training performed better in detecting, diagnosing, and managing skin disorders than those without.<sup>[18]</sup>

More than two-thirds of PHCPs in our study (72.2%) admitted that a lack of knowledge was the main reason that they felt incompetent to manage skin disorders. Previously, Bahelah *et al.* investigated PHCPs' knowledge and self-perception of competency in dermatology. Their study revealed that the self-perception of competency was not associated with a greater ability to classify skin lesions, which they concluded accordingly. In general, PHCPs need continuing medical education to improve their knowledge of dermatology.<sup>[11]</sup> This can be done using several methods as suggested by different studies, including teledermatology,<sup>[8]</sup> dermatologist-organized workshops, lectures, and other training activities,<sup>[9]</sup> and working as a clinical assistant in a dermatology clinic.<sup>[1]</sup>

## CONCLUSION

Overall, in Jeddah in the Kingdom of Saudi Arabia, the PHCPs' knowledge regarding common dermatological disorders was insufficient, indicating the need to improve such knowledge among them. Filling the dermatology knowledge gaps of PHCPs is crucial, since they are the first doctors consulted by patients having skin problems in a PHC setting. Additional training should be supplemented with the collaboration of academic dermatologists, who should organize workshops, lectures, and other continuing medical education activities for PHCPs.

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