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KNOWLEDGE, PERCEPTION, AND ATTITUDE ABOUT PSORIASIS AMONG THE GENERAL POPULATION IN TABUK, SAUDI ARABIA

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ABSTRACT

Objectives: The present survey was performed to explore the public prevalence, knowledge, and attitude of psoriasis among Saudi residents in Tabuk city, Saudi Arabia.

Methods: A online questionnaire including demographic information, disease awareness, sources of information, personal experience, opinions on psoriasis, as well as knowledge about public actions was applied.

Results: This study included 632 participants who completed the questioner. Twenty-five (6.0%) of the studied subjects have developed the disease. About one-third (30.4%) did not know that specific types of food could cause flare up of psoriasis and did not identify Eczema as a predisposing factor to psoriasis (29.3%). About 64.0% realized that psoriasis is not infectious disease, but still 182 (28.8%) thought about the probability of being infectious. Negative attitudes including refusing sharing food, shake hands, using the same swimming pool, living in the same house hold or entering in a personal relationship with the patient were identified in 10.8%, 17.1%,54.9%,5.1%, and 37.8%, respectively.

Conclusions: This study shows the need for interventions to increase public awareness of psoriasis in Saudi Arabia. Further, educational campaigns against stigmatization of affected persons are essential. Gender, age and education level of the target groups should be considered.

Keywords: psoriasis, survey, knowledge, attitude, stigma, Saudi Arabia.

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INTRODUCTION

Psoriasis is a common, chronic, immune-mediated disorder with cutaneous and systemic manifestations, and it is associated with substantial negative effects on patient quality of life. The cutaneous lesions and the visible disfigurement can trigger a negative reaction in patients' contacts, which is the major cause of psychological burden of that disease [1].

Psoriasis was estimated to have a global prevalence of 2–3%, affecting more than 125 million people worldwide. Prevalence increases steadily throughout life, from 0.12% at 1-year-old age to 1.2% at the age of 18-years. Psoriasis can manifest at any age, but onset usually occurs between 18 and 39 years of age or between 50 and 69 years of age [2],[3].

Patients with psoriasis are at an increased risk of having other physical diseases, such as psoriatic arthritis, cardiovascular disorders, non-alcoholic fatty liver disease, Crohn's disease, and lymphoma, besides some psychological disorders including anxiety and depression. These comorbid conditions can contribute substantially to morbidity and mortality in patients with psoriasis [4],[5].

Five types of psoriasis have been reported, including plaque psoriasis (psoriasis vulgaris); guttate or eruptive psoriasis; inverse psoriasis (intertriginous or flexural psoriasis); pustular psoriasis, which can take the form of palmoplantar pustulosis or generalized pustular psoriasis; and erythrodermic psoriasis, which despite being rare it is a very serious complication of psoriasis [1].

Diagnosis of psoriasis is usually a clinical issue; however, skin biopsy may rarely be required for diagnosis. In patients with widespread disease, quantifying disease severity and the extent of lesions can be carried out using the Psoriasis Area and Severity Index score. Other more practical scores that are easier to use are now developed for routine clinical practice, such as the Psoriasis Global Assessment score [7],[8].

History taking from all psoriasis patients should include details of family members with the disease, and potential trigger factors such as present infections or new medications. In addition, the patients should be asked about joint involvement because up to 30% of patients with psoriasis develop psoriatic arthritis [9].

Screening for psoriasis can be conducted using questionnaire instruments that have reasonable sensitivity, such as the Psoriatic Arthritis Screening and Evaluation, Toronto Psoriatic Arthritis Screening, and Psoriasis Epidemiology Screening Tools. In addition, cases of severe psoriasis should be screened for metabolic, cardiovascular, and mental health disorders [10][11].

Genetic factors are likely to affect occurrence of psoriasis as evidenced by a higher incidence of the disease in first- and second-degree relatives of patients than in the general population. Genetic factors can also influence disease severity, where patients with a positive family history have an early onset and a more severe course of the disease, in contrast to patients with a negative family

history who have late onset and a milder disease [12],[13].

Topical therapies such as glucocorticoids and vitamin D derivatives are usually effective in mild cases, whereas tacrolimus and other topical calcineurin inhibitors are used for difficult-to-treat areas, such as the patient face. In addition, several drugs (e.g. methotrexate, ciclosporin, acitretin, etanercept, and infliximab) are approved for the systemic treatment of psoriasis. However, their use might be associated with drug-drug interactions and/or organ toxicities. The treatment framework is changing, taking into consideration both the skin symptoms and comorbid diseases, so as to reduce medical risks in those patients [1],[14].

There is always a great necessity to make an early accurate diagnosis of psoriasis and to identify the associated risk factors and comorbid diseases. Therefore, the present study was conducted to provide insight on the prevalence, knowledge and attitude about psoriasis among the general population in Tabuk city, Saudi Arabia. Providing such insight may allow improving management by defining categories of high-risk patients and those with comorbidity such as psoriatic arthritis and cardiovascular diseases. Matching these data with that obtained from other national studies conducted in other regions in Saudi Arabia provides a wider insight on that problem, which may help national resource allocation and setting of educational programs that may help reducing risk factors, enhancing early diagnosis, lessening complication rate, improving patients' quality of life and reducing healthcare costs.

METHODS

Study design:

A cross-sectional survey was conducted.

Eligibility criteria:

Our target population included all 18-years and older Saudi residents of Tabuk city, Saudi Arabia. Participants less than 18-years-old and those with incomplete data were excluded from the study.

Setting and dates:

The study was conducted within Tabuk city, Saudi Arabia. Data collection took place during November and December 2019.

Sampling method:

Sample size was calculated using G*Power version 3.1.9.4. (www.gpower.hhu.de/) using the following assumptions: 95% confidence level, 5% margin of error, level of precision =0.05, and power = 80.0%. The minimum required sample size was 620.

Data collection:

Data collection was carried out through an online questionnaire distributed through a social media app which was WhatsApp, participants were encouraged to share the questionnaire. Participants have received the request messages to participate in the questionnaire through WhatsApp groups of family, colleagues or friends. These messages showed the purpose of the study as well as the survey link. The questionnaire was titled "Knowing and understanding psoriasis". After clicking on the link of the questionnaire, a cover page showing the study title, purpose and the approximate time needed for completion. If the participants agreed to participate, they were asked to click "start the questionnaire ". The survey included demographic information, such as age, gender, marital status, level of

education, occupation, socio-economic status and disease awareness, sources of information, personal experience, opinions on psoriasis among Tabuk residents, as well as knowledge about public actions [15].

Statistical analysis:

Data were tabulated and analyzed by using SPSS, v22.Qualitative data were represented as numbers and percentages in brackets. Quantitative data were tested for normality by Shapiro Wilk test and represented as mean ±SD. Pearson's Chi-Square test was used to investigate associations between two variables. Significance was adopted at $p < 0.05$.

Ethical considerations:

The study obtained ethical approval from the Research Ethics Committee of College of Medicine, Tabuk University, Saudi Arabia. Participants were informed about the study objectives, methodology, risks and benefits. Subjects, who agreed to fill the questionnaire, implied that they agreed to participate in the study. The study conserves participants' privacy. Investigators are responsible for keeping the security of the data.

RESULTS

This study included 632 Saudi residents of Tabuk city who completed the questioner and there was no drop. Their mean age was 31.67± 10.73 years and the majority (83.4%) were females. About half (50.2%) were married while, 44.9% were single. High percent (84.7%) gained university education. The distribution of monthly income (RS) was comparable (Table 1).

Knowledge of participants about psoriasis is demonstrated in table (2). High numbers 568 (89.9%) have heard or read about psoriasis whereas, 89.7% did not know about the international day of psoriasis disease. About one-third (30.4%) did not know that specific types of food could cause flare up of psoriasis and did not identify Eczema as a predisposing factor to psoriasis (29.3%). About 64.0% realized that psoriasis is not infectious disease, but still 182 (28.8%) thought about the probability of being infectious. The sources of their information were mainly relatives or friends (40.8%) and media or internet (35.9%).

There was significant association between age and awareness of the international day of psoriasis disease, and the relation of some foods and psoriasis flare up ($p<0.05$). Older subjects were significantly less knowledgeable than younger ones. Alternatively, false perception that psoriasis is infections was significantly higher among subjects aged 18-30 years ($p=0.006$). Perception of psoriasis as infectious disease was significantly higher in females ($p=0.027$). Otherwise, there was no significant association between gender and other participant's knowledge. Furthermore, significantly higher percent (86.3%) of subjects heard about psoriasis disease were university graduates ($p=0.001$) as illustrated in table (3).

Attitudes towards psoriasis patients are summarized in table (4). Negative attitudes including refusing sharing food, shake hands, using the same swimming pool, living in the same house hold or entering in a personal relationship with the patient were identified in 10.8%, 17.1%,54.9%,5.1%, and 37.8% respectively.

Table (5) shows that refusing using the same swimming pool with psoriasis patients was

Table 1: Sociodemographic characters of the studied participants

		N=632	%
Age (years) Mean± SD		31.67± 10.73	
Gender	Female	527	83.4%
	Male	105	16.6%
Marital status	Widow	11	1.7%
	Single	284	44.9%
	Married	317	50.2%
	Divorced	20	3.2%
Education	Secondary	85	13.4%
	University	535	84.7%
	Below secondary	12	1.9%
Occupation	Student	221	35.0%
	Not employee	113	17.9%
	Employee	298	47.2%
Monthly income (RS)	≤ 5000	320	50.6%
	>5000	312	49.4%

significantly higher among subjects who obtained knowledge from relatives, friends, or media (p= 0.015).

Negative attitudes were significantly higher among participants who did not personally know anybody who has psoriasis ($p<0.05$) as shown in table (6). Additionally, 25 (6.0%) of the studied subjects have developed the disease. Refusing to enter in a personal relationship (marriage) with psoriasis patient was significantly higher among healthy subjects ($p<0.001$) (Table 7).

DISCUSSION

Due to the well-known psoriasis disease burden and perceived stigma among patients with psoriasis, world-wide actions aiming to improve acceptance and awareness of psoriasis as a non-infectious, chronic inflammatory disease have been started [15]. Further, world health organization (WHO) highlighted the nature and magnitude of the

Table 2: Knowledge of participants about psoriasis

		N	%
Have you heard or read about psoriasis disease?	Yes	568	89.9%
	No	64	10.1%
Have you heard or read about the international day of psoriasis disease?	No	567	89.7%
	Yes	65	10.3%
Can specific types of food cause exacerbation of psoriasis?	Yes	440	69.6%
	No	192	30.4%
Are Eczema patients more susceptible to psoriasis?	Yes	447	70.7%
	No	185	29.3%
Is psoriasis infectious disease?	No	404	63.9%
	May be	182	28.8%
	Yes	46	7.3%
What are sources of information?	Relatives or friends	254	40.8%
	Media or internet	223	35.9%
	Multiple sources	95	15.3%
	Physician	26	4.2%
	Books or lectures	19	3.1%
	Having the disease	5	0.8%

Table 3: Association of knowledge and age, gender, and level of education

		Yes		No		
		N	%	N	%	P value
Have you heard or read about psoriasis disease?						
Age groups	18-<30	275	48.4%	36	56.3%	0.378
	30-45	220	38.7%	23	35.9%	
	>45	73	12.9%	5	7.8%	
Gender	Female	479	84.3%	48	75.0%	0.057
	Male	89	15.7%	16	25.0%	
Education	Below university	78	13.7%	19	29.7%	0.001*
	University	490	86.3%	45	70.3%	
Have you heard or read about the international day of psoriasis disease?						
Age groups	18-<30	23	35.4%	288	50.8%	0.012*
	30-45	36	55.4%	207	36.5%	
	>45	6	9.2%	72	12.7%	
Gender	Female	55	84.6%	472	83.2%	0.779
	Male	10	15.4%	95	16.8%	
Education	Below university	14	21.5%	83	14.6%	0.144
	University	51	78.5%	484	85.4%	
Can specific types of food cause exacerbation of psoriasis?						
Age groups	18-<30	197	44.8%	114	59.4%	0.007*
	30-45	182	41.4%	61	31.8%	
	>45	61	13.9%	17	8.9%	
Gender	Female	370	84.1%	157	81.8%	0.471
	Male	70	15.9%	35	18.2%	
Education	Below university	72	16.4%	25	13.0%	0.284
	University	368	83.6%	167	87.0%	
Are Eczema patients more susceptible to psoriasis?						
Age groups	18-<30	208	46.5%	103	55.7%	0.057
	30-45	185	41.4%	58	31.4%	
	>45	54	12.1%	24	13.0%	
Gender	Female	377	84.3%	150	81.1%	0.317
	Male	70	15.7%	35	18.9%	
Education	Below university	63	14.1%	34	18.4%	0.174
	University	384	85.9%	151	81.6%	

*significant at p<0.05.

disease and the need for quality data on the epidemiology of psoriasis [16].

Accordingly, the present survey was performed to explore the public prevalence, knowledge, and attitude of psoriasis among Saudi residents in Tabuk city, Saudi Arabia. Actually, this will help to determine the magnitude of the problem and to prepare educational programs. Thereby, improving patient's quality of life.

In the present study, 333 (52.7%) participants had a personal experience of a person who have the disease. Further 25 (6.0%) have experienced the disease. These findings likely reflect quiet common prevalence of psoriasis among Saudi residents of Tabuk city. Corresponding study among German

Table 4: Attitude of participants towards psoriasis patients

		N	%
Will you share food with the patient?	Yes	564	89.2%
	No	68	10.8%
Will you shake hand with the patient?	Yes	524	82.9%
	No	108	17.1%
Will you use the same swimming pool?	No	347	54.9%
	Yes	285	45.1%
Will you live in the same household?	Yes	600	94.9%
	No	32	5.1%
Will you enter in a personal relationship (marriage) with the patient?	Yes	393	62.2%
	No	239	37.8%

population has found similar figures [15]. However, it is important to note that the detected prevalence was based on patients report rather than definite diagnosis by expert dermatologists. Additionally, the studied sample was a convenient one that not representative of all populations.

The epidemiology of psoriasis is scarce worldwide, available data on the prevalence of psoriasis are mostly from the USA and European countries [17]. Northern Europe showed the greatest prevalence (Norway recorded 11.4%), while the lowest one (0.09%) was reported in Tanzania [3].

Only a few studies have looked at the prevalence of psoriasis in Saudi Arabia, mostly in single cities or regions. An earlier study in the eastern province of Saudi Arabia reported 5.3% prevalence [18]. A hospital based study in Najran reported 1.5% [19]. A recent review of dermatological diseases in the kingdom revealed that Psoriasis as the third most common frequent disorder [20].

The observation that high percentage (89.9%) of participants who were aware of psoriasis disease were university graduates is an encouraging finding and reflects the role of high education and its scientific content in increasing awareness. In comparison, study of common skin disorders perception among college student in Jordan revealed a striking gab of knowledge [21]. Furthermore, this study, showed that older subjects were significantly less knowledgeable than younger ones. This should prompt further actions to educate this category and improving their perception.

This survey elucidated that 182 (28.8%) participants consider that psoriasis is probably infectious disease. This misperception was significantly higher among females and young participants. A similar study involved Qassim university Saudi students reported that 18.6% considered psoriasis is contagious despite their literacy level [22]. Certainly, this misconception is associated with tendency to discriminate the patients and reveals an even greater need for public information.

The sources of their information were mainly relatives or friends (40.8%) and media or internet (35.9%). In agreement with this, Qassim university Saudi students reported sources media (40.7%) and friends or family (19.4%) as the most frequent sources. Only 7.3% respondents gained their information through books or their doctors[22]. This might explain the observed gabs and misperceptions of the studied participants.

Table 5: Association of participants' attitude towards psoriasis patients and source of information

		Source of information												
		Relatives or friends		Media or internet		Physician		Books or lectures		Having the disease		Multiple sources		
		N	%	N	%	N	%	N	%	N	%	N	%	P value
Will you share food with the patient?	Yes	234	92.1%	195	87.4%	24	92.3%	19	100.0 %	5	100.0 %	82	86. 3%	0.259
	No	20	7.9%	28	12.6%	2	7.7%	0	0.0%	0	0.0%	13	13. 7%	
Will you shake hand with the patient?	Yes	217	85.4%	177	79.4%	21	80.8%	17	89.5 %	5	100.0 %	81	85. 3%	0.475
	No	37	14.6%	46	20.6%	5	19.2%	2	10.5 %	0	0.0%	14	14. 7%	
Will you use the same swimming pool?	No	146	57.5%	128	57.4%	11	42.3%	6	31.6 %	0	0.0%	48	50. 5%	0.015 *
	Yes	108	42.5%	95	42.6%	15	57.7%	13	68.4 %	5	100.0 %	47	49. 5%	
Will you live in the same household?	Yes	243	95.7%	211	94.6%	25	96.2%	18	94.7 %	5	100.0 %	90	94. 7%	0.969
	No	11	4.3%	12	5.4%	1	3.8%	1	5.3%	0	0.0%	5	5.3 %	
Will you enter in a personal relationship (marriage) with the patient?	Yes	158	62.2%	136	61.0%	20	76.9%	15	78.9 %	5	100.0 %	55	57. 9%	0.138
	No	96	37.8%	87	39.0%	6	23.1%	4	21.1 %	0	0.0%	40	42. 1%	

*significant at p<0.05.

Table 6: Association of participants' attitude towards psoriasis patients and contact with psoriasis patient

		Do you personally know anyone who has psoriasis?				
		Yes 333 (52.7%)		No 299 (47.3%)		
		N	%	N	%	P value
Will you share food with the patient?	Yes	310	93.1%	254	84.9%	0.001*
	No	23	6.9%	45	15.1%	
Will you shake hand with the patient?	Yes	302	90.7%	222	74.2%	<0.001*
	No	31	9.3%	77	25.8%	
Will you use the same swimming pool?	No	162	48.6%	185	61.9%	0.001*
	Yes	171	51.4%	114	38.1%	
Will you live in the same household?	Yes	325	97.6%	275	92.0%	0.001*
	No	8	2.4%	24	8.0%	
Will you enter in a personal relationship (marriage) with the patient?	Yes	235	70.6%	158	52.8%	<0.001*
	No	98	29.4%	141	47.2%	

*significant at $p<0.05$.

Another objective of this study was to quantify the attitude of public towards psoriasis patients; because there is a strong relation between social acceptance and level of community awareness and knowledge about psoriasis [22].

Stigmatization and negative attitudes regarding psoriasis can precipitate frustration, disappointment, depression and impair the social life of psoriatic patients [23]. The results showed that a substantial percentage of laypersons reported a desire to avoid persons with visible psoriatic lesions in routine social and work-related situations. Participants also endorsed negative stereotypes and myths, such as beliefs that persons with psoriasis are sad, insecure, and contagious.

However, the responses to questions regarding stigmatization show that a small percentage of the population still harbors prejudices and inhibitions when it comes to interacting with psoriasis patients. These findings should prompt further public information campaigns.

In the current study, negative attitudes including refusing sharing food, shake hands, using the same swimming pool, living in the same house hold or entering in a personal relationship with the patient were identified in 10.8%, 17.1%,54.9%,5.1%, and 37.8% respectively. The majority of individuals favored the integration of patients reported previous experience of someone having the disease. Refusing to enter in a personal relationship (marriage) with psoriasis patient was significantly higher among healthy subjects than diseased ones. In comparison, higher degrees (70%, 51.5%, 20%) of negative feelings towards psoriatic patients were demonstrated by Saudi University students [22]. Likewise, high degrees of rejection were reported the United States, which was fewer if participants having heard of or knowing someone with psoriasis [24]. The extent of stigmatization of people with

Table 7: Association of participants' attitude towards psoriasis patients and having experience of psoriasis

		Have you personally affected by psoriasis?				
		Yes 25 (6.0%)		No 607 (96.0%)		
		N	%	N	%	P value
Will you share food with the patient?	Yes	23	92.0%	541	89.1%	0.483
	No	2	8.0%	66	10.9%	
Will you shake hand with the patient?	Yes	23	92.0%	501	82.5%	0.169
	No	2	8.0%	106	17.5%	
Will you use the same swimming pool?	No	9	36.0%	338	55.7%	0.053
	Yes	16	64.0%	269	44.3%	
Will you live in the same household?	Yes	24	96.0%	576	94.9%	0.635
	No	1	4.0%	31	5.1%	
Will you enter in a personal relationship (marriage) with the patient?	Yes	24	96.0%	369	60.8%	<0.001 *
	No	1	4.0%	238	39.2%	

*significant at p<0.05.

psoriasis was also studied in general German population. The reported negative attitudes included; 7-9% did not like to shake hand with a person affected and 6-9% did not want to live together in a household. But, knowing someone affected showed no significant association with stigmatizing attitudes [25].

One image of rejecting psoriasis patients in this study involving refusing using the same swimming pool with psoriasis patients was significantly related to obtaining knowledge from relatives, friends, or media. [22] previously detected a similar relation.

These results highlight the necessity for public measures against the stigmatization of people with psoriasis. Additionally, future research representing the views of those affected will allow better understanding of the mechanisms of stigmatization [26].

CONCLUSION

This study shows the need for interventions to increase public awareness of psoriasis in Saudi Arabia. Further, educational campaigns against stigmatization of affected persons are essential. Gender, age and education level of the target groups should be considered.

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