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Prevalence of Acne Vulgaris in Riyadh Medical Students

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Abstract

Acne is a common skin disorder of teenagers and continues into adulthood. Research has been in Saudi Arabia. The objective of this study was to assess acne prevalence in final year female medical students in Riyadh, Saudi Arabia using the global acne grading system (GAGS) compared with student's selfreport of their acne. This is a cross-sectional study interviewed subjectively and examined objectively by a trained physician. This study showed that acne was reported subjectively by 83.4% of female students compared to 98% of students assessed objectively by the global acne grading system. 14.6% of students claimed having no acne while it was objectively present, which was statistically significant ($X^2 = 15.4$, $P < 0.001$). 41% visited a dermatologist and 28.5% waited 1 year until seeking a dermatologist. However, 35.8% of students got an over- the-counter drug for their acne. Surprisingly, treatment duration expectation was < 1 week in 9.9% compared to > 2 months in 39.1% of students. Acne was present in 41.1% of the student's parents compared to 83.4% in their siblings. A total of 41.7% of student had trunk acne. 60.9% of students had scarring and 72.8% of them had pigmentation. Moderate to severe acne students had higher sibling's acne history of 95.2% ($X^2 = 5.85$, $P < 0.05$), higher scaring of 73.8% ($X^2 = 4.05$, $P < 0.05$), and higher pigmentation of 85.7% ($X^2 = 4.87$, $P < 0.05$) which was statistically significant. Our study confirms that acne is very common in female medical students in Riyadh, Saudi Arabia with a prevalence rate of 98%. Knowledge regarding acne treatment was inadequate demonstrating the need for educational and awareness programs about early treatment that will prevent suffering from acne scarring or pigmentation.

Keywords: *Acne; Acne Vulgaris; Acne Prevalence; Acne Treatment; Acne Self-Report*

Introduction

Acne is one of the most common inflammatory chronic skin diseases that affect teenagers and continues into adulthood. Women are most commonly affected with a mean age for presentation of 24 years [1]. In the US, the prevalence rate of acne is 85% in those aged 12 to 24 years [2]. Only a small percentage of acne patients are treated by a dermatologist or prescribed medications [3]. While there is no associated mortality with acne, suffering mainly is due to permanent scarring, post inflammatory hyperpigmentation and poor self-image [4]. Various studies on acne prevalence showed that patients have a greater degree of acne severity if there is first-degree relative's acne history [5,6]. There are many studies on twins and families that proved that a first-degree relative acne history has a strong influence on age of onset, severity and treatment [7]. There is abundance in the availability of over the counter (OTC) skin care products in pharmacies and centers promoted to the public. Without seeing a dermatologist, patients will choose OTC treatments that may not control their acne [8]. Inflammatory acne lesions can result in permanent scars, the severity of which may be affected by delay in treatment and by the degree of acne severity [9,10].

Methods

A questionnaire-based cross-sectional study was conducted among 141 final year female medical students attending at Riyadh.

Final year female medical students were interviewed using a confidential, anonymous interviewing questionnaire to collect personal data, knowledge, perception and practice regarding their acne. After students oral consent, they were given a questionnaire to complete. All the students completed the questionnaire that was distributed to them. Upon completion of the questionnaire by students, an intern who was trained earlier by the consultant dermatologist examined the students for the presence of acne lesions. The trained intern then graded the acne severity and was blinded to the study outcome.

Clinical classification of acne severity was done using the Global Acne Grading System (GAGS). Each type of lesion was given a value depending on severity: no lesions = 0, comedones = 1, papules = 2, pustules = 3 and nodules = 4. The score for each area (Local score) is calculated using the formula: Local score = Factor x Grade (0 - 4). The global score is the sum of local scores, and acne severity was graded using the global score. A score of 1 - 18 is considered mild; 19 - 30, moderate; 31 - 38, severe; and > 39, very severe [11].

Statistical Methods

According to the GAGS, students were classified into four groups: None, mild, moderate, and severe acne. Individuals with moderate and severe acne were included in one group for some evaluations. The primary outcomes of the study were the prevalence and clinical severity of acne in comparison with the self- report of acne in final year female medical students in Riyadh, Saudi Arabia.

The association between clinical acne grade as the dependent variable and other factors as explanatory variables were analyzed by chi-squared test. Analysis of data was done using SPSS Version 13 (SPSS, Inc., Chicago, IL, USA). Data were presented by OR and 95% CI. P values of <0.05 were considered statistically significant.

Results

Acne Severity

Using the GAGS to examine the students, acne was present in 138/141 (98%) of female medical students involved in the study. 96/141 (68%) had mild acne, and 36/141 (25.5%) moderate, and 6/141 (4%) had severe acne present (Table 1).

	Frequency	Percent
None	3	2.0
Mild	96	68
Moderate	36	25.5
Severe	6	4.0

Table 1: *Grade of acne severity.*

Acne Self-Rating by Students

According to the Acne self-rating question in the questionnaire, 126 out of 141 (83.4%) medical students have acne. As 91/141 (60.3%), 30/1411 (19.9%) and 5/141 (3.3%) rated their acne as mild, moderate and severe respectively (Table 2).

Comparing between patient self-assessment and objectively assessing patient acne by the global acne grading system, it was found in our study that 14.6% (22 students) claimed to have no acne while they were having acne objectively which was statistically significant (X^2 = 15.426, P < 0.001), OR = 6.727 (95% CI 4.575 - 9.892) (Table 2-5).

			Self-assessment		Total
			None	Acne	
		Count	3	0	3
Objective assessment	None	% within objective assessment	100.0%	0.0%	100.0%
		Count	22	126	138
	Acne	% within objective Assessment	14.9%	85.1%	100.0%
		Count	25	126	141
	Total	% within objective Assessment	16.6%	83.4%	100.0%

Table 2: *Objective assessment vs. Self-assessment cross tabulation.*

Risk Estimate			
	Value	95% Confidence Interval	
		Upper	Lower
Odds ratio for modified grading (none and mild vs. moderate and severe)	0.187	0.042	0.832
For cohort brothers and sisters acne (none and mild)	0.828	0.736	0.932
For cohort brothers and sisters acne (moderate and severe)	4.431	1.092	17.976
Number of valid cases	141		

Table 3: *Modified acne grading vs. brothers and sisters acne.*

Risk Estimate			
	Value	95% Confidence Interval	
		Upper	Lower
Odds ratio for modified grading (none and mild vs. moderate and severe)	0.451	0.206	0.989
For cohort scars (none and mild)	0.758	0.593	0.969
For cohort scars (moderate and severe)	1.681	0.970	2.914
Number of valid cases	141		

Table 4: *Modified acne grading vs. scars.*

Risk Estimate			
	Value	95% Confidence Interval	
		Upper	Lower
Odds ratio for modified grading (none and mild vs. moderate and severe)	0.352	0.136	0.914
For cohort pigmentation (none and mild)	0.792	0.662	0.947
For cohort pigmentation (moderate and severe)	2.248	1.021	4.950
Number of valid cases	141		

Table 5: *Modified acne grading vs. pigmentation.*

Discussion

Acne prevalence was reported to be 85% in the population age of 12 to 24 years [2,12,13]. On the acne self-assessment questionnaire, acne was reported by 83.4% of students compared to 98% by the physician's examination. Menon showed acne prevalence determined by the trained observer to be 0.55 (95% CI 0.49 - 0.61), while Self-reported acne prevalence was 0.43 (95% CI 0.37 - 0.49). Not many studies in the literature have analyzed the validity of self-reported acne in comparison with the trained observer diagnosis of acne. The few studies that looked at this problem concluded that there is lack of agreement between self-report and the trained observer acne evaluation, which is similar to our study [14].

Our study showed that 41.7% of students had truncal acne (chest and back). This goes with a previous study that showed that 41% of women have truncal acne [15]. Our study also showed that acne is present more on the back than on the chest area. This shows the importance of always examining the back of an acne patient by the treating physician, to prevent unnecessary scarring from a delay in treating back lesions.

Moderate and severe acne students in our study had a higher percentage in seeking a dermatologist regarding their acne. 28.5% of students in our study waited more than 1 year to see a dermatologist. Although there is an abundant availability of acne treatments, there is underutilization of them. According to one study, treatment of acne is used in only 18% of adolescents suffering from acne [16]. Our study showed that 35.8% of students got an acne treatment without a prescription; which are most probably over the counter drugs. This is comparable to the general estimation that 30% of affected acne patients are likely to use OTC treatments [14]. Surprisingly the treatment duration expectation was less than one week in 9.9% of students and more than 2 months in 39.1% of students only. Based on these numbers, there should be more education regarding the time required to see a full response to medications, which is usually 2 to 3 months [17].

Our study is compatible with another study that showed undergraduate students to have acne by 78% heritability in first-degree relative's [18]. Previous studies showed that moderate to severe acne were strongly associated with first- degree relative's acne history [5,19]. Students in our study with moderate to severe acne had a higher percentage of sibling's history of 95.2%.

Our study showed that scaring was present in 60.9% of our student's population, in which we postulate that not seeking a dermatologist for treatment is the main reason. A large percentage of students had post inflammatory hyperpigmentation (72.8%); which is likely due to the Middle Eastern ethnic group; who are mostly Fitzpatrick skin types 3 and 4. Also, using over the counter treatments such as exfoliating products or strong toners can contribute to PIH by causing skin irritation [20]. This is why designing a treatment regimen individualized for every patient will help reducing PIH and increasing the patient satisfaction. Our students with moderate to severe acne revealed that 85.7% of them had PIH. A study done by the Asian acne board showed that 58.2% of patients in their study had PIH [21]. The higher percentage of PIH in our study may be explained again because of darker Fitzpatrick skin types in Arabian skin compared to Asian skin.

One of the limitations of our study is that all the students are females with no male participants. We believe that the results from our female study sample are representative of females in Saudi Arabia of a similar age group. The high acne prevalence in our study compared to other studies may be due to the fact that it was done in a classroom setting and was not clinic based, which allowed us to include many students with mild acne who would not usually seek medical advice. Acne is usually considered a disorder of adolescence. However, there are not many data on the prevalence of acne in the adult population [22]. Although acne is best assessed by a dermatological examination, standardized diagnostic criteria are not available [23].

Conclusion

Our study confirms that acne is very common in female medical students in Riyadh, Saudi Arabia with a prevalence rate of 98%. This is the first study in Saudi Arabia to compare acne prevalence and severity using an objective assessment by the GAGS compared to the students self-report of acne. Our study showed a discrepancy between the self-assessment of acne and objective assessment by the physician. Our study also showed that there is a delay in seeking medical advice and that students with higher acne grade were more likely to visit a dermatologist. The importance of having patient's knowledge and treatment practices regarding their acne is fundamental in creating awareness about the treatments effectiveness. This will also lead to the prevention of unnecessary suffering from acne scaring or pigmentation, which was highly prevalent in patients with moderate to severe acne in our study.

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