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ORIGINAL CONTRIBUTION

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Prevalence of acne vulgaris and its impact of the quality of life among secondary school-aged adolescents in Sohag Province, Upper Egypt

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Summary

Background: Acne vulgaris is the most common dermatological condition encountered in adolescents.

Aim: It was to determine the prevalence of acne vulgaris and its impact of the quality of life among adolescents attending secondary schools in Sohag Province, Upper Egypt.

Patients and methods: This was a cross-sectional study conducted in randomly selected governmental and technical secondary schools in Sohag Province, Upper Egypt. Approval was taken from the scientific research committee of Sohag Faculty of Medicine and also from Ministry of Education. Every student with acne was subjected to full medical history and local examination of head and neck to assess the severity of acne vulgaris. Assessment of the impact of acne vulgaris on their quality of life was carried out using self-reported validated specific questionnaire, the Cardiff Acne Disability Index (CADI).

Results: This study included 994 teenage secondary school students. The overall prevalence of acne vulgaris was 333 (33.5%). The mean age of the students with acne was 16.84±0.87. Acne vulgaris was more common among females than among males (200, 60% vs 133, 40%). The most common form of acne vulgaris was mild 178, 53%, followed by moderate form 135, 41%, and severe form 20, 6%. CADI score was significantly related to the disease grade and it was maximum among those with severe grade, followed by moderate and lastly mild disease grade.

Conclusion: Acne vulgaris is a common skin disease and has a valuable impact on quality of life among adolescents attending secondary schools in Sohag Province, Upper Egypt.

KEYWORDS
acne vulgaris, CADI score, quality of life

1 | INTRODUCTION

Acne vulgaris is a chronic inflammatory disease of the pilosebaceous unit, characterized by formation of comedones, erythematous papules, and pustules, less frequently by nodules, deep pustules, or pseudocysts and, in some cases, it is accompanied by scarring.[1]

Acne vulgaris is the most common dermatological condition encountered in adolescents, as almost every one worldwide has acne to some extent during puberty. It has a prevalence of almost 85% in people aged 12-24 years.[2]

It is a polygenic and multifactorial disease where sebaceous hyperplasia and excess sebum production under androgenic stimulus,

ductal hyperproliferation and comedone formation, propionibacterium acne colonization of the duct, inflammation, and immune response are the four main pathogenic factors.[3]

The clinical presentation of acne can range from a mild comedonal form to severe inflammatory cystic acne of the face, chest, and back.[4]

Acne is neither a life-threatening nor systemic disease, yet its psychological effects are enormous. Previous studies on the psychological impact of acne have documented dissatisfaction with appearance, embarrassment, and lack of self-confidence in acne patients. Social dysfunction has also been observed, including concerns about social communication with the opposite gender, interaction with strangers, and reduced employment opportunities. Even mild acne can pose a significant problem for some patients, diminishing their quality of life.[5]

The objective of this study was to determine the prevalence of acne vulgaris and its impact of the quality of life among adolescents attending secondary schools in Sohag Province, Upper Egypt.

2 | METHODS

This was a cross-sectional study conducted in randomly selected governmental and technical secondary schools in Sohag Province, Upper Egypt. The study has been carried out on 994 students from February to April 2014, after approval from the scientific research committee of Sohag Faculty of Medicine and also, an approval from Ministry of Education.

Schools were visited by the researcher, each student was examined for acne, and written consent letters describing the research were given to acne students only. The students were excluded from the study if they refused to give consent.

Every student with acne was subjected to: (1) full history taking including age, sex, family history, duration of the disease, any received treatment whether systemic or topical and the response of this treatment; and (2) local examination of head and neck to assess the severity of acne vulgaris.

Acne patients were classified into mild, moderate, and severe according to the classification of American Academy of Dermatology.[6] Mild acne is characterized by the presence of few to several papules and pustules mixed with comedones, but no nodules. Moderate acne has several to many papules and pustules, along with few nodules. Severe acne has numerous or extensive papules and pustules, as well as many nodules.

Assessment of the impact of acne vulgaris on their quality of life was carried out using self-reported validated specific questionnaire, the Cardiff Acne Disability Index (CADI).[7] CADI scores were graded as low (0-4), medium (5-9), and high (10-15). The lower the cumulative CADI score, the lower the level of disability experienced by the student while a higher score indicated a higher level of disability.

2.1 | Statistical analysis

Statistical package for social sciences (IBM-SPSS), version 22 IBM, Chicago, USA, was used for statistical data analysis.

3 | RESULTS

This study included 994 teenage secondary school students (560 from governmental schools and 434 from technical schools). The study comprised of 525 (52.8%) females and 469 (46.2%) males.

The overall prevalence of acne vulgaris was 333 (33.5%). The mean age of the students with acne was 16.84±0.87. Acne vulgaris was more common among females than among males (200, 60% vs 133, 40%). Positive family history was found in 140 (42%). The most common form of acne vulgaris was mild 178, 53%, followed by moderate form 135, 41%, and severe form 20, 6%. CADI presented as (0-5 in 179, 54%), (5-10 in 110, 33%), and (11-15 in 44, 13%) (Table 1).

There was no significant difference between the type of school and the sex of the subjects both in the affected and in the nonaffected groups ($P>.05$). However, comparing the gender of the affected groups with the gender of the nonaffected group, we found that females had more acne than males, with a highly significant difference ($P<.001$) (Table 2).

Students with acne who are from governmental schools tend to have more moderate and severe grades of the acne vulgaris than

TABLE 1 Demographics of the study population

	Affected		Not affected		Total
Total number	333	33.5%	661	66.5%	994
School					
Governmental					
Total	182	32.5%	378	67.5%	560
Mild	88	48%	-		-
Moderate	78	43%	-		-
Severe	16	9%	-		-
Technical					
Total	151	35%	283	65%	434
Mild	90	60%	-		-
Moderate	57	38%	-		-
Severe	4	2%	-		-
Sex					
Male	133	28%	336	72%	469
Female	200	38%	325	62%	525
Age (mean±SD)/year	16.84±0.87				
Positive family history	140	42%	-		-
Disease severity					
Mild	178	53%	-		-
Moderate	135	41%	-		-
Severe	20	6%	-		-
CADI					
0-5	179	54%	-		-
6-10	110	33%	-		-
11-15	44	13%	-		-
No. of treated cases	140	42%	-		-

CADI, Cardiff Acne Disability Index score; SD, standard deviation.

TABLE 2 Relation between affection of acne vulgaris and both gender of the patient and type of school

	Males	Females	Total	Chi-square	*P* value
Nonaffected					
Governmental	186	192	378	0.934	.334
Technical	150	133	283		
Total	336	325	661		
Affected					
Governmental	79	103	182	2.011	.156
Technical	54	97	151		
Total	133	200	333		
Total					
Governmental	265	295	560	0.01	.920
Technical	204	230	434		
Total	469	525	994		
Chi-square	0.633	2.887	26.366		
P value	0.426	0.089	<.001		

P value <.05 was significant.

TABLE 3 Relation between grading of the disease and each of sex and school type of the study population

	Grading				Chi-square	*P* value
	Mild	Moderate	Severe	Total		
School type						
Governmental	88	78	16	182	7.670	.022
Technical	90	57	4	151		
Sex						
Female	115	71	14	200	5.496	.064
Male	63	64	6	133		
Total	178	135	20	333		

P value <.05 was significant.

technical schools, with a significant difference. Female students tend to have more common mild form of acne than males. There was no significant difference between sex and grades of the acne vulgaris (Table 3).

CADI score was significantly related to the disease grade, and it was maximum among those with severe grade, followed by moderate and lastly mild disease grade (Table 4).

4 | DISCUSSION

This study aimed to determine the prevalence of acne and its impact on the quality of life among adolescents attending secondary schools in Sohag Province, Upper Egypt.

This study included 994 teenage secondary school students. The overall prevalence of acne vulgaris was 333 (33.5%). This prevalence was much lower than that seen by Noorbala et al.[8] who found that the prevalence of acne was about 85.9% of high school-aged students (age 15-18 years). It may relate to ethnic variations.

Acne vulgaris was more common among females than males (200, 60% vs 133, 40%). It may relate to hormonal changes during menstrual cycles or higher psychological stress levels at females. The sex distribution was similar to that seen by Shyam et al.[9] who stated that males were 44.2% of the acne vulgaris patients and females were 55.8%. Female predominance was observed by Al-Ameer et al.[10] (M:F ratio 1:1.8) while Adityan et al.[11] found that male predominance with M: F ratio was 1.25:1. This female predominance was seen also by Noorbala et al.[8] On the other hand, Peric et al.[12] found that there was male predominance among their cases from Serbia.

Regarding the disease grade, this study found that 53.5% of the students had mild grade of acne vulgaris, 40.5% had moderate degree, and only 6% had severe grade. These results were consistent with those of Shyam et al.[9] who found that 81.0% of the patients had mild grade of acne vulgaris according to Global Acne Grading System. 7.8% of patients had moderate severity acne and 1.2% of the patients had severe grade of Acne vulgaris.

A study by Kokandi [13] found that 73.2% of the patients were classified as mild acne vulgaris according to Global Acne Grading System (GAGS). 25% of the patients were classified as moderate severity, 1.8% of the patients were classified as severe acne, and no cases were classified as very severe.

Hanisah et al.[14] found that 90.2% of the patients had mild acne vulgaris. 7.3% of the patients had moderate severity acne and 2.5% of the patients had severe acne on school-aged adolescents in Malaysia.

We found that patients from governmental schools tend more to have moderate and severe grades of the acne vulgaris, with a significant difference compared with technical schools.

Males tend to have more moderate to severe acne vulgaris than females with no significant difference between sex and grades of the acne vulgaris. These findings were not similar to that seen by

TABLE 4 Relation between CADI score and grading of the disease

Grading	Mean	Median	SD	Minimum	Maximum	ANOVA	*P* value
Mild	5.33	5.00	3.696	0	13	4.469	.012
Moderate	5.55	5.00	3.705	0	14		
Severe	7.75	9.00	4.255	1	13		
Total	5.58	5.00	3.773	0	14		

CADI, Cardiff acne disability index score, SD, standard deviation.
P value <0.05 was significant.

Noorbala et al.[8] who found that severe acne vulgaris was more common among males compared to females with a significant difference between sex and grades of the acne vulgaris. It may relate to their oilier complexion and higher androgen levels.

CADI score was significantly related to the disease grade, being maximum among those with severe grade, followed by moderate and lastly mild disease grade. Our results were similar to these seen by Shyam et al.[9] who found that impairment of quality of life was significantly related to the grade of acne. Also, Noorbala et al.[8] found a highly significant correlation between disease severity and CADI score. Peric et al.[12] also showed a significant correlation between severity of acne and CADI score.

Kakandi [13] found that CADI did not correlate with acne severity as assessed by GAGS. Another study in Hong Kong found that there was no correlation between GAGS acne severity score and CADI score.[15]

5 | CONCLUSION

Acne vulgaris is a common skin disease and has a valuable impact on quality of life among adolescents attending secondary schools in Sohag Province, Upper Egypt. It is important for the health professionals to consider the quality-of-life evaluations are essential in managing acne vulgaris among adolescents.

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