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ORIGINAL RESEARCH

Perceived vs. Clinical Acne Severity: Impact on QoL and Treatment Adherence in Male Military Personnel: A Cross-Sectional Study

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Background: Acne vulgaris imposes a significant psychosocial burden, which may be intensified when patients' perceived severity diverges from objective clinical grading. Such discordance may be amplified in high-stress populations like military personnel, yet evidence in this cohort remains limited. This study quantified this discordance in male military personnel and evaluated whether subjective or objective severity better predicts quality of life (QoL) impairment and treatment adherence.

Methods: We conducted a cross-sectional, questionnaire-based study at a major military medical center in China from March to July 2025. A total of 300 active-duty male military personnel with acne vulgaris were enrolled. Acne severity was objectively assessed by dermatologists using the Global Acne Grading System (GAGS) and subjectively by patients using a 10-cm visual analog scale (VAS). QoL was measured using the Dermatology Life Quality Index (DLQI). Associations between severity scores, DLQI, socio-demographics, and treatment patterns were analyzed using Spearman's rank correlation, Mann–Whitney *U*-test, Kruskal–Wallis *H*-test, and Chi-square test as appropriate.

Results: Significant discordance existed between clinician and patient severity assessments ($P<0.001$). Clinicians classified severity as mild (39.0%), moderate (52.7%), and severe (8.3%), whereas self-ratings were 12.7% mild, 53.0% moderate, and 34.3% severe; 52.3% of patients overestimated their severity. Self-rated severity correlated more strongly with DLQI impairment than GAGS scores ($r=0.314$ vs. 0.206, both $P<0.001$). GAGS scores were primarily associated with impairments in physical symptoms, clothing, and social activities, while self-rated severity correlated significantly with all 10 DLQI domains. Higher DLQI scores were associated with marriage, acne scars, military service of 2–5 years, and persistent symptoms (all $P<0.05$). A treatment paradox emerged: patients with objectively severe acne sought more interventions but had shorter treatment duration (64% discontinued within ≤1 month, $P=0.040$), whereas those with subjectively severe acne maintained longer courses (69.9% continued >3 months, $P=0.011$).

Conclusion: In military populations, self-perceived acne severity more strongly predicts QoL impairment than objective grading and drives differential treatment engagement. Integrating dual-dimensional assessments and psychological support into military dermatology protocols is essential to optimize acne management.

Keywords: acne vulgaris, military personnel, patient-reported outcomes, quality of life, severity of illness index, treatment adherence

Introduction

Acne vulgaris is a prevalent inflammatory disorder of the pilosebaceous units, affecting approximately 9.4% of the global population and imposing a substantial psychosocial burden that includes heightened anxiety, depression, and social avoidance, thereby significantly impairing patients' quality of life (QoL).[1,2] This burden is particularly pronounced in military populations, where the prevalence of acne is notably high. Epidemiological studies from Korea and Turkey have documented acne prevalence rates ranging from 15.7% to 35.6% among active-duty service members.[3,4] Emotional

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regulation difficulties and social appearance anxiety are established predictors of this QoL impairment, highlighting the intertwined dermatological and psychological sequelae of the condition.[5–7]

Objective assessment using systems like the Global Acne Grading System (GAGS) and subjective patient self-ratings are both critical to treatment decisions.[8] For QoL measurement, the Dermatology Life Quality Index (DLQI) is a widely used and validated instrument.[9,10] Studies using DLQI confirm that higher acne severity correlates with greater QoL disturbance.[11–13] However, acne severity alone may not directly dictate psychological burden, as factors like stigmatization and lesion visibility also play mediating roles.[14–16] This evidence underscores the necessity of integrating patient-reported outcomes with objective assessment for comprehensive management.

A key challenge in this integration is the documented discordance between clinician and patient perceptions of severity. Such discrepancies are influential, as subjective perceptions may more strongly predict psychosocial dysfunction and QoL than objective lesion counts.[17] For instance, patient self-assessments often show a stronger, more direct link to QoL impact compared to clinician grading.[18] Despite this, research directly comparing how these divergent assessments differentially affect QoL domains and subsequent treatment decisions remains limited. This gap is particularly critical in understudied, high-stress populations where psychological and environmental factors may amplify perceptual differences.

Military personnel represent one such population, facing unique stressors like disrupted routines and intensified social scrutiny.[19] Dermatological disorders are common in this cohort, with acne constituting a significant proportion.[20] Preliminary evidence suggests military stressors can exacerbate acne severity perception.[21] Nevertheless, studies examining the interaction between clinician versus patient-rated severity tools, DLQI, and treatment behaviors in military personnel are sparse. Therefore, this study aimed to quantify the discordance between clinician-assessed (GAGS) and self-perceived (VAS) acne severity among male military personnel and to evaluate their respective associations with QoL impairment and distinct treatment adherence patterns. Our findings aim to inform targeted, patient-centered interventions within military healthcare systems.

Materials and Methods

Study Design and Patients

A cross-sectional study was conducted between March and July 2025 at a tertiary military hospital in China. Consecutive male military personnel who presented to the dermatology department and were clinically diagnosed with acne vulgaris were screened for eligibility. Inclusion criteria were: (1) age ≥18 years; (2) clinical diagnosis of acne vulgaris; (3) ability to comprehend and complete the survey. Exclusion criteria were: (1) unwillingness to cooperate with clinical assessments; (2) incomplete questionnaire data; (3) presence of other severe dermatological or systemic conditions that could confound QoL assessment. The primary objective of this study was to quantify the discordance between clinician-assessed and self-perceived acne severity among male military personnel. Secondary objectives were to evaluate the respective associations of these two severity measures with QoL impairment and to examine their differential relationships with treatment adherence patterns.

A priori sample size calculation was performed using G*Power 3.1. Based on an expected correlation coefficient of 0.25 between self-rated severity (VAS) and DLQI scores, with $\alpha = 0.05$ and power = 90%, a minimum of 253 participants was required. We enrolled 300 participants to account for potential dropouts. This sample size also provides adequate power for the primary analysis (Chi-square test comparing GAGS and VAS severity distributions), for which a sample of approximately 171 would suffice to detect a medium effect size ($w = 0.3$).

Evaluation of Acne Severity

Objective Assessment: To minimize bias, objective acne severity was independently assessed by two dermatologists blinded to patient self-reports, using the Global Acne Grading System (GAGS). The GAGS evaluates six regions (forehead, each cheek, nose, chin, and chest/back combined), assigning each a factor based on size. Lesion severity per region is graded 0–4 (0=none; 1=comedones; 2=papules; 3=pustules; 4=nodules). The regional score is calculated by multiplying the severity grade by the area factor, and summing all regional scores yields the total GAGS score (range:

1–44). Final scores were based on consensus following independent rating. For analysis, severity was categorized as mild (1–18), moderate (19–30), or severe (≥31; original “very severe” scores >38 were merged into this category due to few cases).[22]

Subjective Assessment: Patients self-rated their acne severity on a 10-cm visual analog scale (VAS), anchored at 0 (“no acne”) and 10 (“extremely severe acne”). The lowest score reported was 1. For analysis, VAS scores were categorized as mild (<4), moderate (4–7), or severe (>7). These thresholds were adapted from the widely accepted pain severity classification on the 10-cm VAS, where scores of 1–3, 4–6, and 7–10 conventionally denote mild, moderate, and severe pain.

The Dermatology Life Quality Index

Quality of life was assessed using the Chinese version of the Dermatology Life Quality Index (DLQI), a validated 10-item questionnaire that has demonstrated good reliability and validity in Chinese dermatology patients.[23] The full questionnaire is available at www.cardiff.ac.uk/medicine/resources/quality-of-life-questionnaires/dermatology-life-quality-index. Each item is scored from 0 (“not at all”) to 3 (“very much”), yielding a total score of 0–30, with higher scores indicating greater life quality impairment. Total scores were interpreted as: 0–1 (no effect), 2–5 (small effect), 6–10 (moderate effect), 11–20 (very large effect), and 21–30 (extremely large effect).

Data Collection and Quality Control

Data were collected via patient-completed paper questionnaires, which covered sociodemographic characteristics (eg., age, height, weight, marital status, education), acne history and features, treatment experiences, and the self-assessment scales (VAS and DLQI). All collected questionnaires were anonymized using a unique study identification number. Subsequently, data from the paper questionnaires were independently entered into a standardized electronic Case Report Form (eCRF) by two trained research assistants. To ensure accuracy, the entries were cross-verified and any discrepancies were resolved by referring back to the original questionnaire. The finalized dataset was further reviewed and consolidated by a third senior researcher prior to statistical analysis. Questionnaires with missing core data, obvious errors, or evidence of non-diligent responding (eg., straight-lining across all items) were identified during this verification process and excluded from the final analysis.

Statistical Analysis

Statistical analyses were performed with SPSS 22.0 (IBM Corp, Armonk, NY, USA). Data normality was assessed using the Kolmogorov–Smirnov test. As data were non-normally distributed, continuous variables are expressed as mean ± SD descriptively, and non-parametric tests were used for all inferential analyses. Correlations between two groups were examined using Spearman correlation analysis. For a two-group comparison, continuous variables were compared by Mann–Whitney *U*-test while categorical variables were compared by using chi-square test or Fisher’s exact test, where appropriate. For comparisons among three or more groups, continuous variables were compared using the Kruskal–Wallis *H*-test. Agreement between GAGS and VAS severity classifications was evaluated using the Chi-square test and Cohen’s weighted kappa (κ) with quadratic weights. Bilateral P values < 0.05 were taken as the statistically significant threshold for all tests.

Results

A total of 335 patients were initially enrolled, of whom 16 declined participation and 19 were excluded due to incomplete questionnaires. Ultimately, data from 300 patients who completed all assessments were included in the final analysis. The cohort consisted exclusively of male military personnel, with a mean age of 23.55 ± 2.68 years and a mean BMI of 19.71 ± 2.00 kg/m^2. The mean age of acne onset was 17.53 ± 2.87 years, and the mean disease duration was 6.05 ± 3.41 years. The mean GAGS score was 20.43 ± 7.23. Detailed demographic and clinical characteristics are presented in Table 1.

Self-rated severity showed a stronger positive correlation with DLQI scores than did GAGS scores (Spearman’s rho = 0.314 vs. 0.206, both P < 0.001; Figure 1). A significant discordance was observed between clinician-assessed and patient-perceived acne severity (P < 0.001; Figure 2). Based on GAGS scores, dermatologists classified 39.0%, 52.7%, and 8.3% of cases as mild, moderate, and severe, respectively. In contrast, patient self-ratings were 12.7% mild, 53.0%

Table 1 Sociodemographic Characteristics of Participants with Acne Vulgaris. (n=300)

Index	n	%
Age (year)	23.55±2.68	–
18-23	161	53.7
≥24	139	46.3
Sex/Men	300	100
BMI (kg/m^2)	19.71±2.00	-
<18.5	104	34.7
18.5–24	187	62.3
≥24	9	3.0
Length of military service	4.51±3.13	-
≤2	107	35.7
3-5	99	33.0
>5	94	31.3
Marital status		
Single	274	91.3
Married	26	8.7
Identity type		
Conscripts	25	8.3
Noncommissioned officers	163	54.4
Officers	87	29.0
Cadets	25	8.3
Education		
High school	39	13.0
College	257	85.7
Master/Doctor degree	4	1.3
Family history of acne		
Yes	103	34.3
No	197	65.7
Smoker		
Yes	153	51.0
No	147	49.0
Age of acne onset (year)	17.53±2.87	-
<16	69	23.0
16–19	169	56.3
≥20	62	20.7
Duration of acne (years)	6.05±3.41	-
≤5	139	46.3
>5	161	53.7
Acne scars		
Yes	147	49.0
No	153	51.0
Pigmentation (PIH/PIE)		
Yes	40	13.3
No	260	86.7
GAGS score	20.43±7.23	-

Abbreviations: PIH, Post-inflammatory Hyperpigmentation; PIE, Post-inflammatory Erythema; GAGS, Global Acne Grading System.

moderate, and 34.3% severe. Overall, 157 patients (52.3%) overestimated their severity relative to the clinical assessment. Agreement between the two classification methods was fair, with a weighted kappa coefficient of κ = 0.22 (95% CI: 0.14–0.30).

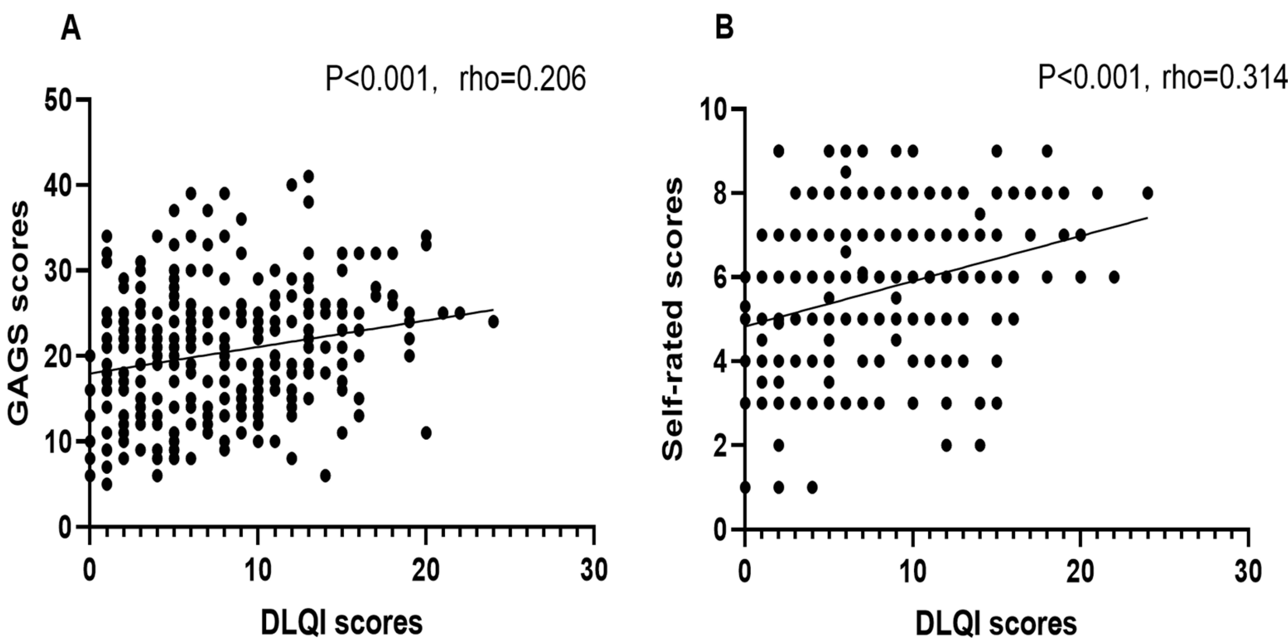

Figure 1 Correlations of acne severity with QoL impairment. Scatter plots with fitted trend lines depicting the relationship between Dermatology Life Quality Index (DLQI) scores and (**A**) clinician-assessed severity (Global Acne Grading System, GAGS) and (**B**) patient self-rated severity (visual analog scale, VAS). Data were analyzed using Spearman's rank correlation.

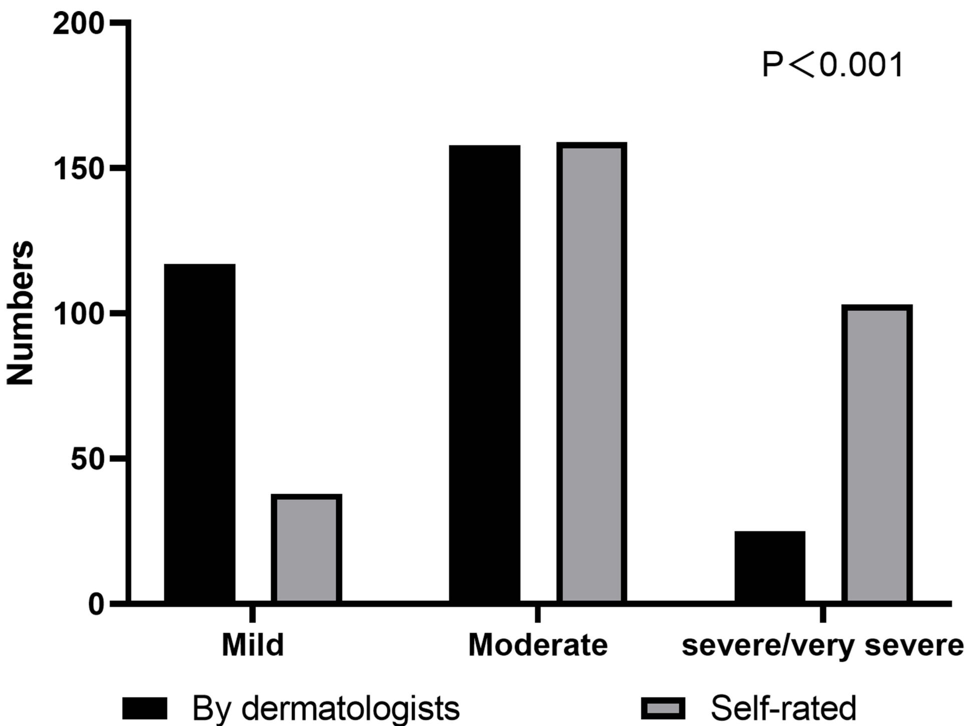

Figure 2 Discordance between clinician-assessed and self-rated acne severity. Bar graph showing the distribution of acne severity categorized as mild, moderate, or severe, based on dermatologists' evaluation using the Global Acne Grading System (GAGS) and patient self-assessment using a visual analog scale (VAS). A significant difference in severity distribution between the two assessment methods was determined by the Chi-square test (P < 0.001).

When grouped by clinician-assessed GAGS severity, scores for physical symptoms (Q1, P = 0.039), clothing choices (Q4, P = 0.001), and social/leisure activities (Q5, P = 0.029) differed significantly across severity groups. No significant differences were observed for the remaining seven DLQI items (Q2, Q3, Q6–Q10; all P > 0.05). In contrast, when grouped by patient self-rated severity, all 10 DLQI items showed significant differences across severity groups (all P < 0.05). Particularly strong associations (all P < 0.001) were noted for embarrassment (Q2), clothing choices (Q4), social activities (Q5), and treatment difficulties (Q10) (Table 2).

Table 2 Mean Scores of Individual DLQI Items Grouped by Clinician-Assessed (GAGS) and Self-Rated Acne Severity

DLQI Item	Severity	Clinician-Assessed (GAGS)		Self-Rated Severity	
		[1]Mean Item Score(Range)	P-value	Mean Item Score(Range)	P-value
Q1: Physical symptoms			0.039		0.003
	Mild	1.08 (0–3)		0.87 (0–2)	
	Moderate	1.16 (0–3)		1.14 (0–3)	
	Severe	1.40 (0–2)		1.26 (0–3)	
Q2: Embarrassment			0.131		<0.001
	Mild	1.02 (0–3)		0.71 (0–2)	
	Moderate	1.19 (0–3)		1.10 (0–3)	
	Severe	1.28 (0–3)		1.33 (0–3)	
Q3: Daily activities			0.827		0.021
	Mild	0.57 (0–2)		0.40 (0–2)	
	Moderate	0.65 (0–3)		0.59 (0–2)	
	Severe	0.64 (0–2)		0.76 (0–3)	
Q4: Choice of clothes			0.001		<0.001
	Mild	0.73 (0–3)		0.66 (0–2)	
	Moderate	0.99 (0–3)		0.80 (0–3)	
	Severe	1.24 (0–2)		1.18 (0–3)	
Q5: Social and leisure activities			0.029		<0.001
	Mild	0.80 (0–3)		0.63 (0–3)	
	Moderate	1.01 (0–3)		0.85 (0–3)	
	Severe	1.20 (0–3)		1.21 (0–3)	
Q6: Sport			0.698		0.044
	Mild	0.54 (0–2)		0.34 (0–1)	
	Moderate	0.54 (0–3)		0.53 (0–2)	
	Severe	0.68 (0–2)		0.67 (0–3)	
Q7: Work/study			0.246		0.005
	Mild	0.51 (0–2)		0.34 (0–3)	
	Moderate	0.63 (0–3)		0.55 (0–2)	
	Severe	0.72 (0–2)		0.75 (0–3)	
Q8: Personal relationships			0.555		0.038
	Mild	0.41 (0–2)		0.29 (0–1)	
	Moderate	0.52 (0–2)		0.44 (0–2)	
	Severe	0.52 (0–2)		0.60 (0–2)	
Q9: Sexual difficulty			0.096		0.002
	Mild	0.37 (0–2)		0.26 (0–2)	
	Moderate	0.58 (0–3)		0.43 (0–3)	
	Severe	0.64 (0–3)		0.70 (0–3)	
Q10: Treatment difficulties			0.108		<0.001
	Mild	0.98 (0–3)		0.82 (0–3)	
	Moderate	1.21 (0–3)		1.00 (0–3)	
	Severe	1.16 (0–3)		1.41 (0–3)	

Notes: [1]Data are presented as mean item score (range). Kruskal–Wallis *H*-test was used.
Abbreviations: GAGS, Global Acne Grading System; DLQI, Dermatology Life Quality Index.

Several demographic and clinical characteristics showed significant associations with DLQI scores (Table 3). Acne duration exceeding 5 years was linked to higher DLQI scores compared to duration ≤5 years (8.44 ± 2.72 vs. 7.67 ± 4.93; P = 0.009). The presence of acne scars was also associated with greater impairment (8.95 ± 5.30 vs. 7.07 ± 4.62; P = 0.003). Military service length exhibited a nonlinear relationship with QoL, where personnel serving 2–5 years reported the highest DLQI scores (8.83 ± 4.75), which were significantly higher than those with >5 years (7.09 ± 4.79) or ≤2 years of service (8.01 ± 5.43) (P = 0.032). Married participants had higher DLQI scores than single patients (8.17 ± 5.08 vs. 6.12 ± 4.35; P = 0.048), and persistent acne was associated with greater QoL impact than relapsing disease (8.56 ± 5.17 vs. 7.16 ± 4.76; P = 0.020). Self-perceived distress due to acne demonstrated a clear dose-response relationship with escalating DLQI scores (no distress: 2.33 ± 2.44; mild: 6.24 ± 3.77; moderate: 11.78 ± 4.37; severe: 13.74 ± 4.03; P <

Table 3 Association Between DLQI Scores and Clinical and Demographic Characteristics

Features	Number	Mean DLQI Score (±SD)	P-value
Duration of acne (years)			0.009
≤5	139	7.67±4.93	
>5	161	8.44±2.72	
Acne scars			0.003
Yes	147	8.95±5.30	
No	153	7.07±4.62	
Length of military service (years)			0.032
≤2	107	8.01±5.43	
2-5	99	8.83±4.75	
>5	94	7.09±4.79	
Marital status			0.048
Single	274	6.12±4.35	
Married	26	8.17±5.08	
Identity type			0.961
Conscripts	25	7.80±3.79	
Noncommissioned officers	163	8.01±4.96	
Officers	87	7.91±5.52	
Cadets	25	8.32±5.23	
Family history of acne			0.152
Yes	103	8.63±5.29	
No	197	7.66±4.90	
Progression of acne			0.020
Persistent	178	8.56±5.17	
Relapse after cure	122	7.16±4.76	
Degree of facial oiliness			0.391
Full face	174	8.35±5.19	
Forehead and nose	104	7.57±4.76	
Non-greasy	22	7.18±5.21	
Level of distress caused by acne			<0.001
None	24	2.33±2.44	
Mild	171	6.24±3.77	
Moderate	86	11.78±4.37	
Severe	19	13.74±4.03	
Pigmentation (PIH/PIE)			0.898
Yes	40	8.08±4.98	
No	260	7.98±5.07	

Note: Mann–Whitney *U*-test was used.
Abbreviations: PIH, Post-inflammatory Hyperpigmentation; PIE, Post-inflammatory Erythema; DLQI, Dermatology Life Quality Index.

0.001). Identity type, family history of acne, facial oiliness distribution, and post-inflammatory pigmentation showed no significant associations with DLQI (all P > 0.05).

Acne severity influenced treatment behaviors. When analyzed by clinician-assessed severity, patients with severe acne tried a greater number of hospital-based treatments (P = 0.006) but paradoxically had the shortest treatment duration, with 64.0% discontinuing within one month (P = 0.040) (Table 4). In contrast, when analyzed by self-rated severity, patients who perceived their acne as severe also pursued more hospital treatments (P = 0.029) but maintained longer treatment courses, with 69.9% continuing for over three months (P = 0.011) (Table 5). For both severity classification methods, no significant differences were observed across severity groups regarding the use of facial cleansers, daily washing frequency, number of information sources consulted, or total number of therapies attempted (all P > 0.05).

Table 4 Differences in Treatment Options Among Patients with Different Acne Severity (Group by GAGS)

Treatment Selection	Total (n=300)	Mild (n=117)	Moderate (n=158)	Severe (n=25)	P-value
Use facial cleanser or soap					0.239
Yes	118(39.3)	52(44.4)	55(34.8)	11(44.0)	
No	182(60.7)	65(55.6)	103(65.2)	14(56.0)	
Wash face ≥ twice a day					0.312
Yes	137(45.7)	53(45.3)	69(43.7)	15(60.0)	
No	163(54.3)	64(54.7)	89(56.3)	10(40.0)	
Number of information sources[1] for acne treatment					0.750
0–1	142(47.3)	57(48.7)	72(45.6)	13(52.0)	
2	96(32.0)	40(34.2)	49(31.0)	7(28.0)	
≥3	62(20.7)	20(17.1)	37(23.4)	5(20.0)	
Number of different acne management[2] strategies ever tried					0.860
0–1	62(20.7)	28(23.9)	29(18.4)	5(20.0)	
2–3	163(54.3)	61(52.2)	88(55.7)	14(56.0)	
≥4	75(25.0)	28(23.9)	41(25.9)	6(24.0)	
Types of acne treatments tried in hospital[3]					0.006
0	64(21.3)	33(28.2)	28(17.7)	3(12.0)	
1	99(33.0)	46(39.3)	45(28.5)	8(32.0)	
≥2	137(45.7)	38(32.5)	85(53.8)	14(56.0)	
Longest duration of treatment[4]					0.040
≤1 months	130(43.3)	57(48.7)	57(36.1)	16(64.0)	
1–3 months	101(33.7)	38(32.5)	59(37.3)	4(16.0)	
≥3 months	69(23.0)	22(18.8)	42(26.6)	5(20.0)	

Notes: Chi-square test and Fisher's exact test were used. GAGS: Global Acne Grading System. [1]Information sources included dermatologists, peers/family, advertisements, the internet, beauty salons, magazines, and television. [2]Management strategies encompassed self-extraction, dermatology consultations, enhanced facial cleansing, over-the-counter medications, non-medicated acne products, and visits to beauty salons. [3]Hospital treatments referred to prescribed oral medications, herbal formulas, topical agents, and procedures (e.g., incision & drainage, laser therapy). [4]Longest treatment duration denotes the maximum period a patient reported consistently adhering to any single treatment regimen in the past.

Table 5 Differences in Treatment Options Among Patients with Different Acne Severity (Group by Self-Rating)

Treatment Selection	Total (n=300)	Mild (n=38)	Moderate (n=159)	Severe (n=103)	P-value
Use facial cleanser or soap					0.161
Yes	118(39.3)	20(52.6)	62(39.0)	36(35.0)	
No	182(60.7)	18(47.4)	97(61.0)	67(65.0)	
Wash face ≥ twice a day					0.956
Yes	137(45.7)	18(47.4)	73(45.9)	46(44.7)	
No	163(54.3)	20(52.6)	86(54.1)	57(55.3)	

(*Continued*)

Table 5 (Continued).

Treatment Selection	Total (n=300)	Mild (n=38)	Moderate (n=159)	Severe (n=103)	P-value
Number of information sources[1] for acne treatment					0.070
0–1	142(47.3)	19(50.0)	75(47.2)	48(46.6)	
2	96(32.0)	14(36.8)	57(35.8)	25(24.3)	
≥3	62(20.7)	5(13.2)	27(17.0)	30(29.1)	
Number of different acne management[2] strategies ever tried					0.215
0–1	62(20.7)	8(21.1)	36(22.6)	18(17.5)	
2–3	163(54.3)	19(50.0)	92(57.9)	52(50.5)	
≥4	75(25.0)	11(28.9)	31(19.5)	33(32.0)	
Types of acne treatments tried in hospital[3]					0.029
0	64(21.3)	14(36.8)	33(20.8)	17(16.5)	
1	99(33.0)	11(29.0)	59(37.1)	29(28.2)	
≥2	137(45.7)	13(34.2)	67(42.1)	57(55.3)	
Longest duration of treatment[4]					0.011
≤1 months	130(43.3)	22(57.8)	77(48.4)	31(30.1)	
1–3 months	101(33.7)	8(21.1)	51(32.1)	42(40.8)	
≥3 months	69(23.0)	8(21.1)	31(19.5)	30(29.1)	

Notes: Chi-square test and Fisher's exact test were used. [1]Information sources included dermatologists, peers/family, advertisements, the internet, beauty salons, magazines, and television. [2]Management strategies encompassed self-extraction, dermatology consultations, enhanced facial cleansing, over-the-counter medications, non-medicated acne products, and visits to beauty salons. [3]Hospital treatments referred to prescribed oral medications, herbal formulas, topical agents, and procedures (e.g., incision and drainage, laser therapy). [4]Longest treatment duration denotes the maximum period a patient reported consistently adhering to any single treatment regimen in the past.

Discussion

Acne vulgaris imposes burdens that extend beyond physical symptoms, especially in high-stress populations such as military personnel. This cross-sectional study examined the divergence between patient- and clinician-perceived acne severity and its psychosocial impact among male military personnel. We found a substantial discrepancy in severity assessments, with subjective ratings consistently exceeding objective clinical evaluations. Notably, this perceptual gap proved to be a stronger predictor of QoL impairment than clinician-rated severity, disproportionately affecting emotional and social functioning.[16] The pronounced influence of self-rated severity underscores the need for dual-dimensional assessment in military dermatology to address this often-overlooked psychosocial burden.[24,25]

The observed discordance reveals a key clinical paradox: patients' subjective perceptions of acne severity frequently exceed objective clinical assessments. While such discrepancies are documented in the general population, often linked to the psychosocial distress associated with inflammatory acne,[26,27] our findings indicate this gap is markedly exacerbated in military contexts. Personnel in this cohort face unique environmental stressors, including disrupted routines, deployment-related anxiety, and intensified social scrutiny within hierarchical structures.[28,29] These factors likely amplify appearance-related vigilance, thereby widening the perceptual divergence.[11] Crucially, the overestimation rate in our military cohort (52.3%) substantially exceeds the 15–25% rates typical in civilian studies,[8,30] suggesting that military-specific stressors significantly distort self-assessment accuracy. This divergence represents a clinically significant "invisible morbidity," where perceived severity is a stronger predictor of psychosocial dysfunction and diminished QoL than objective lesion counts.[31,32]

While both self-rated VAS scores and clinician-assessed GAGS scores showed significant correlations with DLQI scores, the association was notably stronger for patient self-assessment. This difference reflects the nature of the DLQI, an instrument designed to measure the subjective impact of skin disease on daily life, including perceptions of visibility, stigma, and personal distress.[33] Prior studies frequently report only weak-to-moderate correlations between objective severity indices and QoL, whereas self-perceived severity tends to demonstrate a stronger, more direct link to QoL impairment.[28] Similarly, Morshed et al reported that while GAGS-assessed acne severity significantly predicted DLQI scores, psychological distress served as a key mediator in this relationship, underscoring the indirect pathway through

which objective severity affects QoL.[15] Moreover, even when patient and dermatologist ratings show moderate agreement, the patient's own perception carries greater weight in determining their QoL outcomes.[34,35]

A clear divergence emerged in how objective and subjective severity assessments impact different QoL dimensions in our military cohort. Objective severity was associated with a narrower profile of impairment, with significant differences observed only for physical symptoms (Q1), clothing choices (Q4), and social activities (Q5). In stark contrast, subjective self-perceived severity demonstrated a significant and pervasive effect across all 10 DLQI domains. Notably, the strongest associations with self-perceived severity were observed for embarrassment (Q2), clothing choices (Q4), social activities (Q5), and treatment difficulties (Q10). This pattern aligns with the unique psychosocial demands of military service, where close communal living, frequent uniform inspections, and a hierarchical culture that emphasizes discipline and appearance may amplify feelings of embarrassment and social avoidance.[36] Concerns over clothing choices likely reflect the visibility of acne lesions in standard issue uniforms, which frequently expose the face, neck, and upper back. Moreover, the strong link between perceived severity and treatment difficulties suggests that subjective distress, rather than objective disease grade, drives patients' persistence in seeking and adhering to medical care, a phenomenon that may be intensified in military personnel who must balance health seeking behaviors with operational obligations.[37]

Taken together, these findings underscore that the psychosocial dimensions captured by the DLQI, particularly embarrassment, stigma, and body image distress, are fundamentally tied to personal appraisal.[38,39] Higher objective acne grades are known to correlate with worse QoL, often owing to physical discomfort and functional limitations. However, the patient's own perception remains a primary driver of overall psychological well-being and life impact.[34,40] This conclusion aligns with recent evidence from Chinese civilian dermatology patients, in whom self-assessed appearance was more strongly associated with social and emotional QoL impairment than clinician-determined acne severity grading. In that same cohort, the persistent misalignment between patient and physician assessments was identified as a significant barrier to effective clinical decision-making.[41] Within the military context specifically, where uniform standards and communal living already heighten appearance related concerns, these subjective perceptions appear to play an outsized role in determining QoL detriment.

Beyond clinician-rated severity, several other factors modulated QoL in this cohort. Notably, acne duration >5 years, the presence of scarring, and self-perceived distress were associated with greater DLQI impairment, aligning with the known burdens of chronicity and visibility.[2,22] An interesting nonlinear pattern emerged with military service length, with the highest DLQI scores observed at 2–5 years of service, suggesting a potential critical period for psychosocial adaptation. These findings underscore that acne-related QoL is multifactorial, influenced by both disease chronicity and patient-specific psychosocial context.[42,43]

The divergence in severity perception directly translated into divergent patterns of treatment engagement. Both objectively and subjectively severe cases sought more hospital-based treatments, likely reflecting a shared recognition of the need for intensive intervention[5,8] and, in the military context, the imperative to maintain operational readiness.[44] However, a critical paradox emerged in treatment adherence. Patients with clinician-assessed severe acne had significantly shorter treatment durations, with most discontinuing within a month. This may be attributable to military-specific constraints that disrupt clinical follow-up, including unexpected deployments or field duties, despite initial treatment intent.[29] Conversely, patients who perceived their acne as severe maintained longer treatment courses. This suggests that the personal psychological burden captured by self-assessment may be a stronger driver of sustained adherence, potentially due to greater motivation to alleviate distress or prevent scarring.[45] Notably, severity perceptions did not influence routine self-care behaviors, indicating that their primary impact is on formal medical treatment within this structured environment.

This study has several limitations. First, its exclusive focus on male personnel from a single regional command limits the generalizability of findings to female service members, other ethnic groups, and different military branches. Second, the cross-sectional design precludes causal inferences about how perception-driven QoL impairment evolves over time or with treatment. Third, unmeasured confounders, such as specific occupational stressors, hormonal profiles, or dietary habits, may have influenced the observed associations. Fourth, reliance on the DLQI alone may not fully capture dimensions of QoL that are unique to military populations. Future studies should include more diverse cohorts and employ multidimensional assessments.

Conclusion

In conclusion, this study highlights a significant discordance between clinician-assessed and patient-perceived acne severity among male military personnel, with self-ratings consistently exceeding objective evaluations. Crucially, self-perceived severity was a stronger predictor of QoL impairment than clinician-graded severity, especially within the social and emotional domains. A treatment adherence paradox was observed, with objectively severe cases seeking more but shorter treatment, and subjectively severe patients pursuing longer courses. These findings underscore that the psychosocial burden of acne in military settings is driven more by perceived severity than clinical severity. To optimize care, military dermatology protocols should integrate dual-dimensional assessments that incorporate patient-reported outcomes. Future longitudinal research is needed to track the evolution of perception, QoL, and treatment adherence in this population.

Data Sharing Statement

The datasets generated and analyzed during the current study are available from the corresponding author on reasonable request.

Ethics Statement

This study involved human subjects and was conducted in accordance with the principles of the Declaration of Helsinki. The study was approved by the Ethics Committee of Western Theater Command General Hospital (approval number 2025EC5-ky001). All participants provided written informed consent. All patient identifiers were removed prior to the analysis. All data were handled with strict confidentiality to ensure the privacy and anonymity of patients.

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Author Contributions

All authors made a significant contribution to the work reported, whether that is in the conception, study design, execution, acquisition of data, analysis and interpretation, or in all these areas; took part in drafting, revising or critically reviewing the article; gave final approval of the version to be published; have agreed on the journal to which the article has been submitted; and agree to be accountable for all aspects of the work.

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