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RESEARCH ARTICLE

Impact of Acne on Quality of Life in Adolescents of Honduras: A Cross-Sectional Analytical Study

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Introduction: Adolescence represents a period of physical, psychological, and social changes that shape an individual's personality, potentially influenced by their physical appearance due to shifts in adolescent skin texture. Those with dermatosis (alteration or disease that affects the skin), face an increased risk of developing depression, anxiety, and suicidal ideation.
Aim: To assess differences in acne-related quality of life impact among adolescents according to demographic and clinical characteristics.
Methods: Cross-sectional analytical study to identify the factors associated with the consequences of acne in adolescents. A total of 3,272 adolescents aged 12–17 years participated in this study. Participants were recruited using a non-probability snowball sampling strategy and completed a self-administered questionnaire through Google Forms, which included the Cardiff Acne Disability Index.
Results: Of the 3,272 participants, 60.0% (n = 1960) were female. Median age was 15 years. In terms of quality of life, 25.8% (n = 845) reported experiencing moderate to high adverse effects. Furthermore, 5.3% reported extremely low mood related to the appearance of their skin during the month preceding the survey. Multivariate analysis indicated that women were more likely to experience medium or high impacts from acne (aPR: 1.33; 95% CI [1.20–1.48]), as well as those of indigenous ethnicity (aPR: 1.36; 95% CI [1.05–1.75]) and those with facial scarring (aPR: 13.08; 95% CI [10.02–17.05]).
Conclusions: Females, member of an indigenous ethnic group, individuals with facial scarring, or those with a close relative suffering from acne all suggest medium or high impact on their quality of life.

Keywords: acne vulgaris, adolescent, Honduras, quality of life, scar

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Introduction

Acne is defined as a chronic inflammation of the pilosebaceous unit. It is characterized by an increase in sebum production induced by androgens, abnormal keratinization of the pilosebaceous duct, and an immune response to colonization by *Cutibacterium acnes* (formerly *Propionibacterium acnes*) (Layton et al., 2021; Williams et al., 2012). Acne has a global prevalence of approximately 9.4**%,** making it the eighth most prevalent disease worldwide. It affects 90% of adolescents and young adults (Szepietowska et al., 2022; Tan & Bhate, 2015).

The classification of acne is based on age, extent of distribution (face and trunk), and morphology of the lesion (comedonal, inflammatory, mixed, and nodulocystic), as well as the severity of presentations (scarring, erythema, and hyperpigmentation; Eichenfield et al., 2021). Furthermore, the development of social and emotional abilities during adolescence is paramount for maintaining mental well-being. These skills comprise developing consistent sleep patterns, doing frequent exercise, improving social skills, managing challenging situations, solving problems, and acquiring emotional regulation abilities.

Adolescence is a period of significant physical and psychosocial development, and the presence of acne can have a substantial impact on the quality of life of young people. Research indicates that social relationships during this period can be challenging, particularly due to the emphasis on physical appearance (Eyüboglu et al., 2018). Therefore, it is imperative to have a supportive and protective environment in the family, school, and community (Eichenfield et al., 2021). The transition from childhood to adolescence is characterized by substantial physiological and psychological changes in young individuals. The provision of adequate physical and mental healthcare to adolescents is crucial for their growth, development, and overall well-being (Leung et al., 2021; Samuels et al., 2020).

Research conducted to date has suggested that the psychosocial impact of acne may vary across demographic and social subgroups. Ethnicity and related socioeconomic factors may influence adolescents' experiences of visible skin conditions through mechanisms such as differential access to care, exposure to stigma, and cultural interpretations of physical appearance.

The chronicity, visibility, and recurrence of multiple skin lesions have been linked to numerous psychosocial conditions arising due to skin disease. Patients with dermatoses (an alteration or disease that affects the skin) are at a heightened risk of experiencing depression, anxiety, and suicidal thoughts according to studies (Gallitano & Berson, 2018; Gieler et al., 2015; Szepietowski et al., 2018). Additionally, a systematic review and meta-analysis has indicated a significant correlation between acne vulgaris, depression, and anxiety (Samuels et al., 2020).

In contemporary society, non-compliance with specific physical appearance standards can result in bullying by peers, a factor that has been observed to trigger emotional distress in adolescents, thereby exerting a substantial influence on their overall quality of life (Leung et al., 2021). It has been documented that women tend to experience a more profound impact on their quality of life due to acne. Research has underscored the significance of acne, blemishes, scars, and other skin conditions that can affect teenagers (Gallitano & Berson, 2018) and has highlighted the potential for these conditions to induce psychological and social distress among adolescents, given the profound impact of physical appearance (Gudiya et al., 2022).

However, the majority of these studies have been conducted in Europe (Gieler et al., 2015), the United States (Tan et al., 2022), and India (Gudiya et al., 2022). In both developing and developed countries, the impact of mental wellbeing on public health is substantial. Mental well-being is considered a fundamental human right and an essential element for personal, community, and socio-economic development (United Nations, 2021; WHO, 2022).

A study conducted in Turkey by Tuğrul et al. (2023), revealed that not only patients affected by acne but also their parents experienced a lower quality of life compared to healthy individuals. Therefore, improving the treatment of acne vulgaris requires addressing the quality of life of both the patient and their family (Tuğrul et al., 2023). However, these findings may not be fully generalizable to Latin American contexts, where sociocultural norms, access to dermatological care, health system constraints, and structural inequalities differ substantially by contrast; there is a scarcity of research investigating this issue in Latin American nations (Bosio Bonet et al., 2022; Pantoja-Villa et al., 2019).

Inflammatory skin diseases are a group of disorders that impair quality of life and impose a socioeconomic burden; these conditions develop in Latin America in a context of structural inequality, fragmented health systems, and limited epidemiological data (Mazzuoccolo et al., 2025). In countries such as Honduras, adolescents may experience distinct psychosocial stressors related to body image, stigma, and healthcare accessibility, which could influence how acne-related burden is perceived and reported.

A study in Honduras on self-medication and associated factors in patients with acne found that 66.7% of participants were women, most were between 18 and 29 years old (57.8%), and adolescents between 12 and 17

years old comprised 20%. Social media was the main source of information. Self-medication was associated with a perception of moderate to severe acne and barriers to accessing dermatological care (Marriaga Hernández & Matthews Erazo, 2025).

In view of the paucity of evidence from Central America and the absence of population-based studies addressing acne-related quality of life among Honduran adolescents, there is a need for context-specific data. Accordingly, the present study aims to assess differences in acne-related quality-of-life impact among adolescents in Honduras according to demographic and clinical characteristics, using the Cardiff Acne Disability Index. By focusing on subgroup variation rather than causal inference, this study seeks to contribute descriptive evidence that may inform future research and public health strategies tailored to the regional context.

To date there has been no research concerning the influence of acne on the teenage populace of Honduras. Nevertheless, the "Prevalence of dermatoses in school-aged children" report from 2016 indicated that acne had a prevalence rate of 1.2% (Cerrato et al., 2016).

Methods

Research Design and Sampling Procedures

The study was conducted using a methodological framework designed to address high-priority health concerns in under-resourced settings, as previously described by Espinoza-Turcios et al. (2023).

The study was conducted as an observational, cross-sectional, multicenter investigation using a non-probability snowball sampling strategy via an online, self-administered questionnaire, using the Cardiff Acne Disability Index.

Inclusion and Exclusion Criteria

Adolescents aged 12–17 years, residing in Honduras, who provided informed assent and completed the online questionnaire were included, while incomplete responses and records lacking assent were excluded.

Participant recruitment was facilitated by 65 medical students who had undergone specific training in research methodology and dermatology focusing on acne and quality of life. Operating under supervision, these students recruited participants broadly from healthcare settings and community networks. The process was not restricted to dermatology services or individuals with a prior clinical diagnosis of acne. They facilitated participant recruitment across hospitals and primary care units in 16 of the 18 provinces nationwide. Each student recruiter engaged approximately 58 participants on average. Data was collected through a self-administered online questionnaire prior informed assent, with an average completion time of approximately 10 minutes. Data collection took place between July and August 2020.

Initial participants were invited to share the survey link with peers of similar age within their social networks, without any restrictions related to health status, in accordance with standard snowball sampling procedures. The potential for selection bias associated with non-probability snowball sampling reinforces a cautious interpretation of the findings.

The study protocol was reviewed and approved by the Ethics Committee for Biomedical Research (CEIB) under approval number 2020010 during the meeting held on March 20, 2020 (IRB 00003070). The study was conducted in accordance with the principles of the Declaration of Helsinki.

Participants and Data Collection

A total of 3,325 adolescents of both sexes and aged between 12 and 17 years filled out the questionnaire. After data cleaning, 53 entries were excluded due to incomplete information, 51 participants declined to provide informed assent, and 2 records were partially missing. The final sample included 3,272 adolescents, providing a large dataset for the planned descriptive and multivariate analyses.

The sample showed a female dominance (60%), with a median age of 15 years. Nearly three-quarters of the participants identified as Mestizo and indicated that they had a family history of acne, including their mother (20.2%), father (16.9%), siblings (37.7%), cousins (39.6%), and uncles (20.4%).

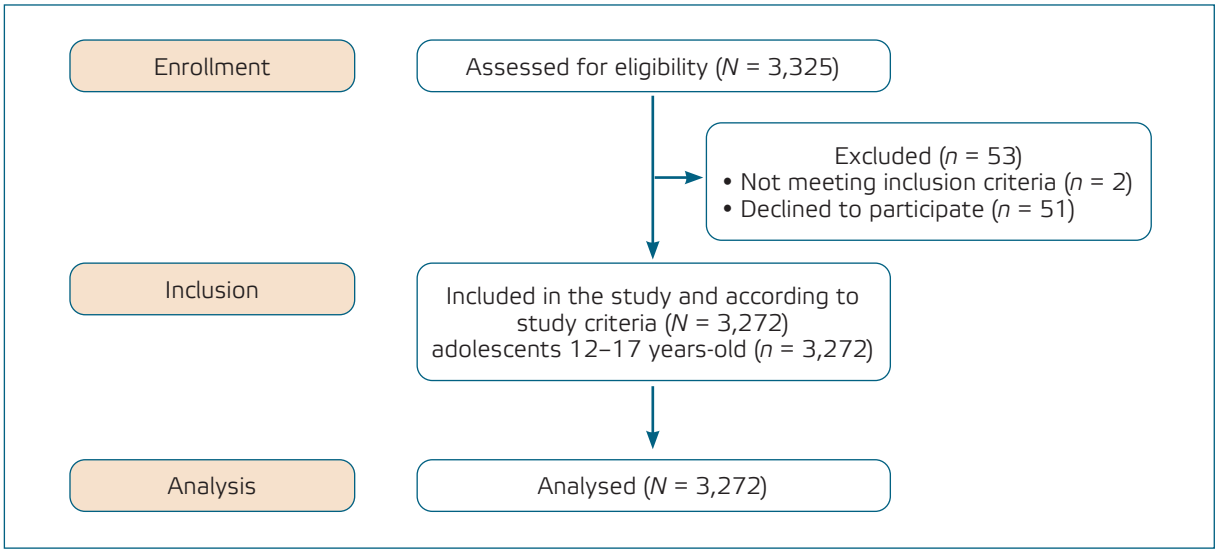

Figure 1. Flow Diagram, Missing Data Handling

Table 1. Characteristics of Adolescents Surveyed in Honduras. *N* = 3,272.

Variable	Frequency	Percentage
Gender		
Male	1,306	40.0
Female	1,960	60.0
Age (years old)		
12 years	190	5.8
13 years	353	10.8
14 years	454	13.9
15 years	683	20.9
16 years	820	25.1
17 years	772	23.6
Median and interquartile range	15 years	14–16 years
Ethnic group		
Mestizos	2,391	74.4
White	342	10.6
Other	378	11.7
Indigenous	105	3.3
Family with acne*		
Mother	658	20.2
Father	553	16.9
Siblings	1,229	37.7
Cousins	1,293	39.6
Uncles	666	20.4
Facial scars		
No	1,701	52.0
Yes	1,571	48.0

Note. *This section does not add up to 100% since the questions were asked in a way that could have multiple answers.

Data Collection

Participants completed the online questionnaire independently, without the presence of a researcher. The questionnaire was developed using Google Forms. All questions were presented in a fixed order, with closed-ended response options.

Measurements

The questionnaire was administered remotely due to COVID-19 related public health measures, including national movement restrictions, school closures, and biosafety protocols implemented to protect both participants and researchers. An instrument was developed, comprising multiple sections, that gathered socio-demographic data, such as typical information (age, gender, schooling, origin, ethnicity), as well as personal pathological history and related factors.

In settings where in-person dermatological examination is not feasible, self-reported acne status supported by standardized visual aids is a commonly used strategy to reduce misclassification and improve respondent understanding (Thomsen et al., 2020; Woods et al., 2025).The visual aids were selected to represent inflammatory and non-inflammatory (comedogenic) patterns (Pantoja-Villa et al., 2019); however, they were not formally classified according to the Fitzpatrick skin phototype scale.

Their purpose was to support participant self-identification rather than to provide a clinical diagnosis. The dermatologist involved in image selection was not involved in participant recruitment, data collection, outcome assessment, or data analysis and did not have access to individual participant responses.

The survey also included the Cardiff Acne Disability Index (CADI), a dermatology-specific questionnaire for adolescents, used to assess acne-related quality of life. The Spanish version of the questionnaire from 2018 was applied, since it has been validated in two Latin American countries by Cardiff University (Cardiff University, 2018). The CADI is a widely used and previously validated instrument with well-established psychometric properties across different populations. In this study, Cronbach's alpha was used to assess the internal consistency of the scales used: 0.81, which indicates that the scale has adequate internal consistency for the studied population (Turra et al., 2025).

As of October 2021, a modification has been implemented to the phrasing, question 2 of the CADI has been rephrased to ensure that it is an appropriate measure for all patients (Abdelrazik et al., 2021). CADI consists of five items: 1. evaluating emotional distress, 2. social interference, 3. behavioral avoidance, 4. perceived severity, 5. overall impact. A global CADI score of each answer was a = 3, b = 2, c = 1, and d = 0. The sum of all questions was calculated, and the total score ranged between 0 and 15.

For analytical purposes, the total score was dichotomized into none/low impact (0–7) and medium/high impact (8–15) based on previously reported cut-off points in literature (Ismail & Mohammed-Ali, 2012; Samanthula & Kodali, 2013). This binary outcome variable was subsequently used to model associations with demographic and clinical characteristics.

Data Analysis

Descriptive analyses were conducted to summarize the characteristics of the study population. Categorical variables are presented as absolute and relative frequencies. Continuous variables were summarized using medians and interquartile ranges (IQR), given the non-normal distribution of the CADI scores.

Bivariate Analysis: Crude Prevalence Ratios (cPR), 95% confidence intervals (95% CI), and *p*-values were calculated for each independent variable, including gender, age, ethnicity, and family history.

Multivariate Analysis: Adjusted Prevalence Ratios (aPR) were generated by including all significant variables from the bivariate stage into the final model to control for confounding factors. The study employed generalized linear models (Poisson family, log link function, and robust variance models) to generate final tables containing RPc (crude prevalence ratios), aPR (adjusted prevalence ratios), 95% confidence intervals, and *p*-values. The use of "robust variance" accounts for potential violations of the Poisson assumption (under/over-dispersion), ensuring the 95% CIs and *p*-values are accurate. Variables showing an association with the CADI score at a significance level of $p < .05$ in bivariate analyses were considered eligible for inclusion in the multivariable model. Since the objective was to identify factors associated with *acne repercussions*, a probability-based model like GLM is statistically indicated.

All statistical analyses were performed using Stata software (version 16).

Results

Acne type (inflammatory vs. non-inflammatory) and severity were self-reported by participants using standardized visual aids provided in the questionnaire and should be interpreted as descriptive, non-clinically validated measures. When asked about their current acne status, 1,717 respondents (52.5%) confirmed the presence of acne. Among them, 761 individuals (44.3%) stated that they have had acne for more than 6 months, and 339 individuals (19.7%) had the inflammatory form of acne. As for severity, 82 individuals (4.8%) reported having severe acne, while 441 individuals (25.7%) had moderate acne.

Table 2. Current Acne Sufferers Among Adolescent Respondents in Honduras: Characteristics and Impact. *N* = 3,272.

Variable	Frequency	Percentage
Currently suffering from acne		
No	1,555	47.5
Yes	1,717	52.5
Months suffering from acne*		
< 1 month	224	13.1
1–3 months	452	26.3
>3 months and up to 6 months	280	16.3
> 6 months	761	44.3
Inflammatory acne*		
No	1,378	80.3
Yes	339	19.7
Severity of acne*		
Light	1,194	69.5
Moderate	441	25.7
Severe	82	4.8

Note. *These questions have only been answered by those who mentioned that they had acne.

All adolescents included in the study completed the CADI questionnaire. According to the CADI item responses, the proportion of participants reporting moderate to high impact (i.e., "Moderately" or "Very much") was 12.9% for feelings of aggression, frustration, or embarrassment; 10.9% for interference with social life or relationships; 8.3% for avoidance of public facilities or swimming; 17.3% for negative feelings about skin appearance; and 19.7% for perceived severity of acne.

Table 3. Disaggregated and Global Responses to the Impact of Acne Among Adolescent Respondents in Honduras. *N* = 3,272.

Questions	Not at all %	A little %	Moderately %	Very much %
As a result of having acne, during the last month have you been aggressive, frustrated or embarrassed?	66.1	21	8.5	4.4
Do you think that having acne during the last month interfered with your daily social life, social events or intimate personal relationships?	69.7	19.4	7.5	3.4
During the last month have you avoided changing public facilities or wearing swimming costumes because of your acne?	79.2	12.4	5.1	3.2
How would you describe your feelings about the appearance of your skin over the last month?	60.4	22.3	12	5.3
Tell us how bad you think your acne is now?	57.2	23.1	17.2	2.5
Degree of acne affect	47.5	26.7	18.9	6.9

In the bivariate analysis, female adolescents were more likely than males to report medium or high acne-related impact ($p < .001$). Compared with 12-year-old adolescents (reference category), those aged 14, 15, 16, and 17 years showed a higher probability of reporting medium or high impact (all $p < .05$). Although age was significantly associated with higher acne-related impact in the bivariate analysis, this association was no longer observed after multivariate adjustment, suggesting that its effect may be explained by other clinical variables included in the model.

Adolescents with facial scars were significantly more likely to report medium or high acne-related impact compared with those without scars ($p < .001$).Similarly, participants with a maternal, paternal, or sibling history of acne showed a higher probability of reporting medium or high impact compared with those without the corresponding family history (all $p < .001$).

Regarding ethnicity, and using Mestizo adolescents as the reference category, individuals classified as "other" ethnicities had a lower probability of reporting medium or high acne-related impact ($p < .001$), while no statistically significant differences were observed for White or Indigenous participants.

Table 4. Bivariate Analysis of Factors Associated with the Impact of Acne in Adolescents in Honduras. *N* = 3,272.

Variable	Acne repercussions		Bivariate analysis	
	None or low	Medium or high	cPR (95% CI)	*p*
Gender				
Male	1,017 (77.9)	289 (22.1)	Comparison category	
Female	1,405 (71.7)	555 (28.3)	1.27 (1.13–1.45)	< .001
Age (years old)				
12 years old	165 (86.4)	25 (13.2)	Comparison category	
13 years old	305 (86.4)	48 (13.6)	1.03 (0.66–1.62)	.886
14 years old	358 (78.9)	96 (21.1)	1.61 (1.07–2.41)	.022
15 years old	468 (68.5)	215 (31.5)	2.39 (1.63–3.50)	< .001
16 years old	582 (71.0)	238 (29.0)	2.21 (1.51–3.23)	< .001
17 years old	549 (71.1)	223 (28.9)	2.20 (1.50–3.21)	< .001
Ethnicity				
Mestizos	1737 (72.7)	654 (27.3)	Comparison category	
White	258 (75.4)	84 (24.6)	0.90 (0.74–1.09)	.284
Other	310 (82.0)	68 (18.0)	0.66 (0.53–0.82)	< .001
Indigenous	72 (68.6)	33 (31.4)	1.15 (0.86–1.54)	.348
Family with acne*				
Mother	409 (62.2)	249 (37.8)	1.65 (0.147–1.87)	< .001
Father	323 (58.4)	230 (41.6)	1.83 (1.62–2.07)	< .001
Siblings	761 (61.9)	468 (38.1)	2.06 (1.83–2.31)	< .001
Cousins	935 (72.3)	358 (27.7)	1.12 (0.99–1.26)	.057
Uncles	480 (72.1)	186 (27.9)	1.10 (0.96–1.26)	.174
Facial scars				
No	1,644 (96.7)	57 (3.3)	Comparison category	
Yes	783 (49.8)	788 (50.2)	14.97 (11.54–19.41)	< .001

Note. *Only the responses of those who suffered are shown; for bivariate analysis, they are always compared with family members who did not suffer. cPR (crude prevalence ratios), 95% CI, and *p* values were obtained with generalized linear models (Poisson family, log link function and models for robust variances).

The results were obtained following multivariate analysis, and Poisson regression with robust variance was used to estimate prevalence ratios (aPR): Medium or high impacts due to acne were found to be more prevalent among women (aPR: 1.33; 95% CI [1.20–1.48]), individuals of indigenous ethnicity (aPR: 1.36; 95% CI [1.05–1.75]), those with facial scars (aPR: 13.08; 95% CI [10.02–17.05], 08; 95% CI [10.02–17.05], and those whose father (aPR: 1.13; 95% CI [1.01–1.25] or siblings (aPR: 1.16; 95% CI [1.04–1.28]) had a history of acne. Although no statistically significant association was observed in the bivariate analysis, indigenous ethnicity became significantly associated with higher acne-related impact after multivariate adjustment, suggesting the presence of confounding effects.

Table 5. Multivariate analysis of factors associated with acne repercussions in adolescents in Honduras, N = 3,272.

Variable	cPR (95% CI)	*p*
Gender		
Male	Comparison category	
Female	1.33 (1.20–1.48)	< .001
Age (years old)		
12 years old	Comparison category	
13 years old	0.83 (0.57–1.22)	.345
14 years old	1.05 (0.75–1.48)	.768
15 years old	1.37 (0.99–1.89)	.055
16 years old	1.25 (0.91–1.72)	.171
17 years old	1.25 (0.91–1.73)	.170
Ethnicity		
Mestizos	Comparison category	
White	0.99 (0.84–1.17)	.914
Others	0.86 (0.71–1.04)	.112
Indigenous	1.36 (1.05–1.75)	.019
Family with acne*		
Mother	1.05 (0.93–1.17)	.419
Father	1.13 (1.01–1.25)	.031
Siblings	1.16 (1.04–1.28)	.005
Facial scars		
No	Comparison category	
Yes	13.08 (10.02–17.05)	< .001

Note. *aPR (adjusted prevalence ratios), 95% confidence intervals, and *p* values were obtained with generalized linear models (Poisson family, log link function, and models for robust variances).

Discussion

The objective of this study was to assess differences in acne-related quality of life impact among adolescents in Honduras according to demographic and clinical characteristics. According to the only examination conducted on this issue in Honduras, acne was found to be the eighth most commonly occurring skin disease, with a prevalence rate of 1.2% in 59 out of 15,002 school-aged children (Cerrato et al., 2016).

A systematic review of the opinions and experiences of individuals with acne vulgaris across six countries found that physical, psychological, and social consequences were prevalent and frequently disrupted the establishment and upkeep of relationships (Ip et al., 2021).

In our study, 25% of adolescents reported the presence of acne lesions on the face. It is crucial to acknowledge that skin conditions of diverse intensity can affect a patient's welfare and lead to psychological outcomes (Baker & Billick, 2022). Hazarika and Archana (2016) ascertained that facial acne was mainly found in one region, with this being the most widespread form (60%). Nevertheless, in 37% of instances, it was also visible in multiple areas (face, chest, and back together). Furthermore, 75% of participants displayed varying degrees of acne scarring, with post-acne hyperpigmentation observed in 79% of cases (Hazarika & Archana, 2016). An online survey investigating the perceptions and management of acne in Europe found that the majority of individuals considered their acne, regardless of severity, a minor or non-existent problem, while 29.7% regarded it as a significant issue or burden (Szepietowski et al., 2018).

In the present study, female adolescents were more likely to report a higher impact of acne on quality of life, with mild forms being the most frequently reported, followed by moderate and severe forms. Similarly, previous research has reported a high burden of acne among adolescents. For example, a study conducted in Egypt found a prevalence of 33.5% among 994 high school students, with a mean age of 16.84 ± 0.87 years. These findings are consistent with our results, suggesting that acne represents significant concern among adolescent populations across different settings.

The CADI score demonstrated a positive correlation with disease severity, with severe grades having a higher score than moderate and mild grades (El-Hamd et al., 2017). In contrast to our findings, Bosio Bonet et al. (2022) discovered that the Dermatology Life Quality Index (DLQI) was higher for males than females. Therefore, it can be concluded that the suffering caused by this disease may vary among populations, underscoring the need for further studies to be conducted within specific countries and regions.

Singh et al. (2021) carried out a study with 1,392 acne-affected participants utilizing the Dermatologic Life Quality Index (DLQI) and the Cardiff Acne Disability Index (CADI). The findings indicated that female participants exhibited notably elevated scores for "feelings of embarrassment and interference with social activities" (Singh et al., 2021). Facial scarring emerged as the variable with the strongest association with diminished quality of life. This finding suggests that scarring is not merely a clinical feature of acne but a primary determinant of psychosocial burden in adolescents. Unlike active lesions, which are often transient, scarring represents a permanent sequela with long-term implications for self-image and social functioning.

A meta-analysis (Liu et al., 2023) including 37 studies with 24,649 acne patients reported a pooled prevalence of acne scarring of 47% (95% CI [38%–56%]). In the USA, in a prospective study with 1,972 participants, it was found that 43% of them had acne scars, and 69% had mild or moderate acne during the medical consultation (Tan et al., 2017). These results underscore the importance of early and effective acne management strategies aimed at preventing irreversible skin damage. From a public health perspective, prioritizing timely access to dermatological care and interventions that reduce the risk of scarring may be more impactful than focusing solely on the treatment of active acne lesions.

Acne vulgaris has the potential to result in permanent physical scarring and adversely affect one's quality of life and self-perception. Furthermore, studies have demonstrated a correlation between acne vulgaris and heightened levels of anxiety, depression, and suicidal ideation (Eichenfield et al., 2021). The present study found that females were more likely than males to report a moderate or high impact of acne on quality of life. This finding is consistent with previous studies conducted in adolescent populations, which have reported greater psychosocial impact of acne among females, possibly reflecting gender differences in appearance-related concerns and social expectations. Our results therefore reinforce existing evidence suggesting that acne may disproportionately affect psychological well-being among adolescent girls.

An investigation carried out in Egypt utilizing the CADI score evaluated the extent of acne's severity and impact on the self-esteem and quality of life of adolescents (Tayel et al., 2020). The findings revealed that 48.96% of students with clinically confirmed acne reported experiencing mild disability, with 11.46% experiencing severe disability. Additionally, the study revealed that low self-esteem was more widespread amongst female students than male students by 28%.

The observed association between indigenous ethnicity and higher acne-related quality-of-life impact in the present study may reflect underlying structural and sociocultural factors. In Latin American contexts, structural inequalities and disparities in healthcare access may further contribute to differences in diagnosis, treatment, and perceived impact of dermatological conditions. In low- and middle-income settings such as Honduras, indigenous populations often face disparities in access to healthcare services.

Previous studies have indicated that racial/ethnic and socioeconomic factors may influence both the clinical presentation and the psychosocial burden of acne, suggesting potential disparities in acne care (Barbieri et al., 2020). Additionally, cultural perceptions of visible skin conditions, stigma, and differences in social experiences may amplify the psychosocial burden of acne. Rodriguez Baisi et al. (2023) reported that a higher socioeconomic level is associated with acne diagnosis, which may be due to a possible disparity in adequate diagnosis and timely care between groups.

Furthermore, variations in skin phototypes may predispose certain groups to post-inflammatory hyperpigmentation and scarring, potentially increasing the perceived severity and long-term impact of acne. The pathogenesis of the condition is shared irrespective of race or ethnicity; however, clinical presentations differ. Those with darker skin phototypes display a greater subclinical inflammatory response, even in non-inflammatory lesions, whether post-inflammatory hyperpigmentation or scarring (da Rocha et al., 2023; Pathmarajah et al., 2022).

The research found that 12–17-year-old adolescents with a positive family history of acne experienced more acne-related consequences. This information is noteworthy, as a positive family history strongly predisposes individuals to acne development, severity, and scarring (Say et al., 2021). Parental acne had a significant association with acne occurrence and moderate to severe acne, while sibling acne had a considerable association with grade 3/4 scarring (Heng et al., 2022). A systematic analysis of the epidemiology of acne vulgaris indicates a significant association between family history, age, BMI, skin type, and acne severity or presentation in numerous studies (Heng & Chew, 2020). In addition, a cross-sectional online survey of 10,521 individuals aged 15–24 in Belgium, Czech Republic, Slovak Republic, France, Italy, Poland, and Spain revealed that subjects with a maternal or paternal history of acne had a higher incidence of acne (Wolkenstein et al., 2018).

The loss of statistical significance of age in the multivariate model suggests that the apparent association observed in the bivariate analysis may be explained by underlying clinical factors, particularly facial scarring. Older adolescents are more likely to have experienced longer disease duration and cumulative skin damage, which may increase the likelihood of scarring. Once scarring is accounted for in the adjusted model, the independent effect of age is attenuated. These findings indicate that acne-related quality-of-life impairment may be driven more by clinical outcomes, such as scarring, than by chronological age itself. This distinction is important, as it shifts the focus from age-related psychosocial vulnerability to the need for early and effective clinical management of acne to prevent long-term sequelae.

The following factors have been identified as increasing the risk of scarring: severity of acne, time elapsed between acne onset and first effective treatment, recurrent acne, and male gender (Tan et al., 2017). A study conducted on a group aged 15–35 showed that 81% of individuals reported problems with facial acne, irrespective of their gender; however, females experienced psychological distress more frequently than males (Kostecka et al., 2022). Kaikati et al. (2021) conducted a study in Lebanon that revealed how acne can cause social barriers, especially for women of childbearing age. Thus, it is crucial to provide support to individuals in comprehending the comprehensive maintenance of acne, controlling acne and its treatments, and recognizing its effects (Ip et al., 2021).

Strength and Limitations

The study included a substantial sample of 3,272 adolescents, ensuring that the results are representative of a wide range of demographic groups and enhancing the generalizability of the findings.

The research is unique in its focus on Honduran adolescents, providing valuable insights into the psychosocial impact of acne in a Latin American context, which has been largely underrepresented in the literature.

The inclusion of various ethnic groups, including Mestizo, White, Indigenous, and others, allowed for the exploration of ethnic disparities in the impact of acne on quality of life, contributing to a more nuanced understanding of the condition's effects.

The study employed the Cardiff Acne Disability Index (CADI), a well-established, validated tool for assessing acne-related quality of life, ensuring that the data collected was reliable and robust.

The study used multivariate analysis to control confounding variables, providing more accurate and meaningful results that account for multiple factors influencing acne-related quality of life.

The data collection was conducted during the COVID-19 pandemic, when sanitary restrictions limited in-person research activities and required the use of remote data collection methods.

As a cross-sectional study, research can only identify associations rather than causal relationships. The impact of acne on adolescents' quality of life may vary over time, but this study does not account for those changes. The non-probability snowball sampling method introduces the possibility of selection bias. Participants were recruited through social networks, which may have resulted in an overrepresentation of certain social groups, limiting the generalizability of the findings. Furthermore, since information on school type and detailed socioeconomic characteristics was not collected, it was not possible to assess the extent of this potential bias.

Another limitation of this study is the lack of clinical validation for acne and depression, as well as the potential influence of confounding factors such as stress related to the COVID-19 pandemic. The classification of acne type was included as a self-reported descriptive variable, supported by standardized visual aids, rather than as a clinically validated diagnostic measure. The visual aids used for acne self-identification were not stratified according to Fitzpatrick skin phototypes, which may have introduced misclassification bias, particularly in a population with diverse ethnic backgrounds. This limitation may affect the accuracy of self-reported acne type and severity.

The absence of detailed socioeconomic data limits the ability to assess how these factors may have influenced

the results. Future studies could benefit from incorporating more specific measures of socioeconomic status to further understand its role.

The low statistical power observed in specific subgroups (e.g., 13-year-olds, participants of white ethnicity, and those reporting a history of acne in siblings) implies limited precision and reduced reliability of subgroup-specific estimates, including wider confidence intervals and an increased risk of type II error. Therefore, the results for these subgroups should be interpreted as exploratory and descriptive. Accordingly, the absence of statistically significant associations should not be interpreted as evidence of no association.

Dichotomization leads to a loss of information and can obscure variability within categories. The findings should be interpreted as identifying groups more likely to experience a significant acne-related burden, rather than as a model of the full spectrum of quality-of-life impairment.

Conclusion, Implications and Future Directions

This study provides valuable insights into the psychosocial impact of acne on adolescents in Honduras, demonstrating that acne significantly affects the quality of life of many adolescents, particularly among females, those with facial scarring, and those with a family history of acne. The findings highlight the profound emotional, social, and psychological consequences that acne can have on young individuals, which are often overlooked in clinical assessments focused on the physical aspects of the condition.

Cultural and ethnic factors, such as indigenous ethnicity, may also play a crucial role in the extent to which acne impacts an adolescent's quality of life.

The findings underscore the need for context-specific public health strategies in Honduras and other Latin American countries. Efforts should be directed toward improving access to dermatological care, especially for adolescents from disadvantaged backgrounds. Public health interventions should focus on raising awareness about the psychological impact of acne and promoting early, effective treatment to prevent long-term scarring.

This study emphasizes the importance of incorporating psychosocial support into acne treatment regimens. Given the high prevalence of emotional distress related to acne, mental health support should be integrated into dermatological care, offering a holistic approach to managing acne. School and community-based programs aimed at reducing acne-related stigma and promoting self-esteem could also play a crucial role in improving adolescents' quality of life.

The study reveals significant disparities in access to care, particularly for indigenous adolescents and those from lower socioeconomic backgrounds. Addressing these disparities through improved healthcare infrastructure, education, and resource allocation is essential to ensure equitable access to effective acne treatment and mental health support.

Future research should consider longitudinal studies to assess the long-term impact of acne on adolescents' quality of life, particularly in relation to acne scarring and the persistence of psychological symptoms over time and should aim to validate self-reported acne severity and type through clinical assessments to minimize misclassification bias.

Further exploration into how socioeconomic factors, such as income, education, and healthcare access, influence the psychosocial burden of acne is needed. Research should also investigate the role of environmental factors, such as social media use, in exacerbating acne-related stigma and psychological distress among adolescents.

Given the cultural diversity of Latin American countries, future research should explore how cultural attitudes toward physical appearance, body image, and skincare practices affect the experience of acne among different ethnic groups. Understanding these cultural nuances can help tailor interventions to be more culturally sensitive and effective. Finally, there is a need for intervention-based studies that assess the effectiveness of combined treatments for acne, including medical and psychosocial interventions. Evaluating the impact of such interventions on both the clinical outcomes (acne severity) and psychosocial outcomes (self-esteem, anxiety, depression) would provide comprehensive evidence on improving adolescent health.

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Declaration of interest statement
The authors have no conflicts of interest to disclose.

Ethical statement
This manuscript is the author's original work.
All participants engaged in the research voluntarily and anonymously.
Their data are stored in coded materials and databases without personal data.
The studies involving human participants were reviewed and approved by The Ethics Committee for Biomedical Research Faculty of Medical Sciences, National Autonomous University of Honduras (IRB 00003070) approved the law number (2020-010) at the meeting held on March 20th, 2020.

Data availability statement
Datasets presented in this article are available from the corresponding author upon reasonable request.

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The authors have not used AI technologies in our research or the preparation of this manuscript.

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