Depression and Quality of Life in Adolescent Acne Patients.

Depresión y Calidad de Vida en Pacientes Adolescentes con Acné.

Carolina Jaime Estrada[1]*, Javier Jaimes Cienfuegos[2], Zahidé Liévanos Estrada[3].

[1] Facultad de Medicina, Universidad Autónoma del Estado de México, México, je.carolina99@gmail.com,
https://orcid.org/0009-0000-8327-6464
[2] Facultad de Medicina, Universidad Autónoma del Estado de México, México, jjaimesc@uaemex.mx
[3] Facultad de Medicina, Universidad Autónoma del Estado de México, México, zalies2020@gmail.com.
https://orcid.org/0009-0001-6996-5754.
* Correspondencia: jjaimesc@uaemex.mx

Abstract: Acne is a chronic inflammatory disease that affects the pilosebaceous unit. Notwithstanding its non-life-threatening nature, it significantly impacts the quality of life of those afflicted. It is predominantly prevalent among adolescents and young adults. In this descriptive observational study involving 254 adolescent acne patients, data was collected through structured instruments and subsequently analyzed statistically. The study revealed a markedly higher incidence of depression within this cohort (30.7%) compared to healthy adolescents in Mexico (7.1%), with a higher prevalence among females (40%). An evident direct proportional relationship between depression levels and perceived quality of life was observed. The severity of perceived acne symptoms correlated with increased levels of depression. Ultimately, the study concluded that acne constitutes a risk factor for the onset of depression in adolescence.

Keywords: Acne, depression, quality of life, adolescence.

Resumen: El acné es una afección crónica inflamatoria que afecta a la unidad pilosebácea. A pesar de no implicar riesgos para la vida, ejerce un impacto significativo en la calidad de vida de los individuos afectados. Esta afección dermatológica se observa con mayor frecuencia en adolescentes y adultos jóvenes. Este estudio descriptivo observacional, que incluyó una muestra 254 pacientes adolescentes diagnosticados con acné, empleó instrumentos estructurados de recolección de datos y análisis estadístico posterior. Los hallazgos del estudio revelaron una prevalencia significativamente mayor de depresión en este grupo de pacientes (30.7%) en comparación con adolescentes sanos en México (7.1%), siendo el sexo femenino el más afectado (40%). Se estableció una relación directamente proporcional entre el nivel de depresión y la calidad de vida percibida por los pacientes. Además, se identificó una correlación positiva entre la gravedad percibida de los síntomas del acné y el grado de depresión experimentado por los individuos. En conclusión, el estudio destaca al acné como un factor de riesgo notable para el desarrollo de depresión en la población adolescente.

Palabras clave: Acné, depresión, calidad de vida, adolescencia.

1. Introduction

Acne is a condition with a high prevalence worldwide, affecting approximately 9.4% of the general population and more than 80% of adolescents and young adults between the ages of 16 and 20 (1). This disease is characterized by skin lesions, primarily affecting the face, as well as other areas of the body such as the back, chest, and shoulders, often leading to permanent and irreversible complications. Due to its widespread occurrence and typically minimal impact on physical function, acne is frequently regarded as a transient cosmetic issue (2). However, it significantly affects the quality of life of those affected, increasing their risk of developing depression, anxiety, and frustration (3-4).

Depressive disorders are a group of mental health conditions characterized by significant and persistent depressive symptoms (loss of interest, anhedonia, disturbances in the sleep-wake cycle), which affect an individual's behavior and overall well-being. While social acceptance of these

disorders has increased in recent years, there has been a notable rise in their prevalence. It remains unclear whether this increase is secondary to environmental factors, such as the lockdown during the COVID-19 pandemic, or if it is caused by the low effectiveness and variable responses to current treatment algorithms. This is why depression remains one of the leading causes of disability worldwide (5-7). Adolescence is a transitional phase between childhood and adulthood, characterized by the onset of puberty, a period of rapid physical, hormonal, and sexual development. During this stage, the environment plays a significant role. Today's adolescents are exposed to a multitude of stimuli and societal stereotypes, largely due to the excessive use of social media. As a result, conditions such as acne, which directly affect physical appearance, can lead to disturbances in body image, low self-esteem, social phobia, depression, anxiety, and even contribute to suicidal behavior (1, 4, 8).

Acne vulgaris is a common chronic inflammatory condition that affects the pilosebaceous unit. Its incidence is higher in adolescents and is characterized by pleomorphic lesions ranging from comedones, papules, and pustules to nodules (9). Its prevalence is high and is associated with multiple factors such as diet type, pharmacotherapy, occupation, climatic factors, pollution, psychosocial factors, and lifestyle. The severity of acne is variable, and several associated risk factors have been identified, including a family history of severe acne, polycystic ovary syndrome, metabolic syndrome, and specific genetic disorders such as Apert syndrome (10-12). Acne is among the eight most common diseases worldwide, affecting approximately 80% of adolescents and young adults, making it one of the longest-lasting chronic skin conditions.1 Its incidence continues to rise due to changes in diet and lifestyle (3, 10-13). It is estimated that 90% of individuals by the age of 21 have experienced acne at some point in their lives, with 85% of cases occurring during adolescence (4).

Conversely, depression is defined as a disorder of emotionality, with its central characteristic being pathological sadness. This refers to sadness that is disproportionate in intensity and/or duration relative to the triggering cause, or even in the absence of any apparent cause or trigger (5-7). Depression affects 350 million people globally, making it a significant public health issue. The National Psychiatric Epidemiological Survey (ENEP) reported that 9.2% of Mexicans have experienced an affective disorder at some point in their lives, with this condition being 5% more common in women than in men (4). The annual prevalence of major depression is approximately 6%, though it varies by country; while lifetime prevalence is estimated to be between 15% and 18%, suggesting that nearly 20% of the population will experience at least one major depressive episode during their lifetime (17). Multiple observational studies have shown that the presence of acne increases the risk of developing depressive disorders. Depression itself is considered one of the leading causes of disability worldwide, with around 34% of adolescents at risk of experiencing it. Between 2011 and 2017, the incidence of depression in adolescents increased by 60%, particularly among females. The most severe complication of major depression is suicide, and in 2020, this illness claimed the lives of 7,896 Mexicans, 1,260 of whom were adolescents. Despite this, depression remains a "taboo" condition in Mexican society, leading to underdiagnosis and negatively impacting the prognosis for those affected (13, 20). Alternatively, while some studies have revealed that the severity of acne is inversely proportional to the quality of life in these patients and directly proportional to their levels of depression, other studies show that the severity of acne is not related to the development of psychological disturbances. In Mexico, despite acne being one of the most common conditions among adolescents, insufficient research has been conducted on the coexistence of acne and depression, creating a significant gap for observational research in our young population.

Understanding how acne is related to the risk of developing depression in adolescents may be crucial for improving the prognosis of both conditions, helping patients receive comprehensive care with combined treatment algorithms that reduce the incidence of severe complications that could threaten their lives. In Mexico, 31.2 million people are adolescents and young adults aged 15 to 29 years. This underscores the importance of this study. Identifying the prevalence of both conditions

in the adolescent population in our country is the first step toward generating public health strategies that promote timely diagnosis and early detection. This is a key factor in determining the impact these diseases have on the psychosocial development of adolescents and their quality of life, ultimately reducing the frequency of psychosocial problems in young adults. For these reasons, the purpose of the present research is to determine the prevalence of depression in adolescent patients with acne and its relationship with their quality of life.

3. Methods

This research study is observational, descriptive, cross-sectional, and retrospective in nature. A non-probabilistic purposive sampling method was used, selecting participants based on predefined inclusion and exclusion criteria. The inclusion criteria were adolescent patients with acne, aged 10 to under 20 years. The exclusion criteria were patients outside of the age range of 10 to 20 years at the time of assessment.

The Beck Depression Inventory-II (BDI-II) was used to assess depressive symptoms, including their presence and severity. This instrument has high predictive validity and reliability, making it widely used in clinical and epidemiological research. It was validated in Spanish for the Mexican population in 2015, confirming its suitability for this demographic. Additionally, the Mexican Clinical Practice Guideline recommends its use for adolescents aged 13 and older, further supporting its relevance to this study (21-22).

To measure quality of life, the Acne Quality of Life Scale (Acne-QoL) was used. This questionnaire assesses the impact of facial acne on daily life in individuals aged 13 to 35, from mild to severe cases. It has demonstrated strong psychometric properties, including construct validity and sensitivity to changes in quality of life. In 2020, it was translated into Spanish and validated in Colombia, where it was identified as the most robust available scale. To ensure clarity and applicability in the Mexican population, a grammatical validation was conducted with 30 Mexican participants (aged 16 to 57), confirming its comprehensibility (3).

Regression analyses were performed using R (version 4.4.3). To minimize recall bias, we used validated instruments that assess recent experiences (BDI-II evaluates depressive symptoms over the past two weeks). Additionally, questionnaires were administered in person to ensure comprehension and consistency in responses.

Permission was obtained from the Directorate of the Faculty of Medicine at the Autonomous University of the State of Mexico to conduct the study. Participants were informed about the purpose of the study through a validly informed consent letter (appendices), and it was made clear that the data would be used with complete confidentiality, as stipulated in the Mexican Official Standard NOM-012-SSA3-2012, which sets the criteria for the execution of health research projects involving human subjects. This study was conducted in accordance with the bioethical principles established by the World Medical Association in the Declaration of Helsinki.

4. Results

A total of 254 patients were studied, of which 63% were women. The age range was from 13 to 19 years. The age group with the highest number of participants was 19 years, followed by the 16-year group. In contrast, the 13-year group only included 11 patients. Regarding sociodemographic characteristics, the majority of participants were single students; only 3% of them were economically active and had a job. The majority of participants (50%) had completed high school, while 34% were attending secondary school.

Regarding depression scores evaluated by the BDI-2 (figure 1), more than half of the patients had minimal depression, 69.2% (n = 176). The remaining 37 patients were categorized as having mild depression, and 27 had scores within the moderate depression range, with the majority being women (88.8%, n = 24). Only 14 patients were diagnosed with severe depression, of which 10 were women and 4 were men.

Regarding quality of life, assessed by the Acne QoL (figure 2), the most frequent quality of life scores were within the range of 49 to 62 points, as shown in the histogram, while only 8 participants achieved scores greater than or equal to 103. The average total quality of life score was 58.6. Likewise, several significant results were obtained in the averages of the different domains evaluated by the scale: Social role, emotional role, self-perception, and symptoms. These results were grouped by age group in figure 3 to identify variations and enhance understanding.

Once analyzed, we can observe that the age group with the lowest average total score was the 18-year-old group (53.6), while the 15-year-old group had the highest average score (66.3). This information did not remain consistent across the more specific domains of the test. In the "social role" domain, the 16-year-olds were the most affected, while the highest score was achieved by the 15-year-olds. Regarding the "emotional role," the lowest average score of 13.9 was obtained by patients aged 17, while the highest average score of 17.3 corresponded to the 13-year-old group. Considering the items assessing self-perception, the most affected age group was the 18-year-olds, while the 15-year-old group achieved the best average. Regarding symptom perception, the most afflicted group, with an average score of 11.9, was the 16-year-olds, whereas the group with the highest average score was the 15-year-olds, with 15.7. When grouping the data by sex, the average quality of life score in women with acne was 55.7, compared to 63.5 in men (figure 4).

When comparing the levels of depression with the corresponding quality of life scores of the recruited patients, figure 5 was obtained. Patients with minimal depression had the best quality of life, with 66.03 points, while the group of patients with severe depression achieved the lowest score, with 32.5 points, representing less than 50% of the average score of the previously mentioned group. When grouping the different domains of the Acne QoL scale, this trend persists, with the minimal depression group obtaining the highest scores (figure 6).

To examine the relationship between quality of life and depression in adolescents with acne, a quadratic regression model was applied. This model demonstrated a strong and significant negative effect of quality of life on depression (quality of life coefficient = -0.450, $p < 0.001$). Specifically, as quality of life improved, depression levels decreased, with a more pronounced effect at lower to moderate levels of quality of life. However, this effect reduced at higher levels of quality of life, indicating a curvilinear relationship (figure 7). The model also revealed that being male was associated with lower levels of depression (coefficient = -3.31, $p = 0.00287$). Other variables such as age, marital status, occupation, and education were not found to be significant predictors of depression in this study. In terms of model fit, the quadratic model explained approximately 31.3% of the variability in depression, an improvement over the linear model, which explained around 29%. The residual standard error was 8.011, indicating better precision in predictions compared to the linear model (error standard residual = 8.13).
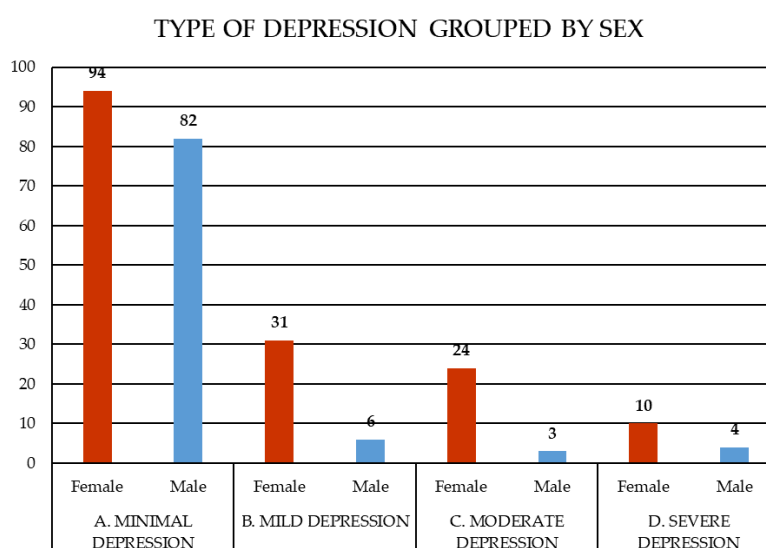

Figure 1. Bar chart representing the frequency of depression levels grouped by sex.
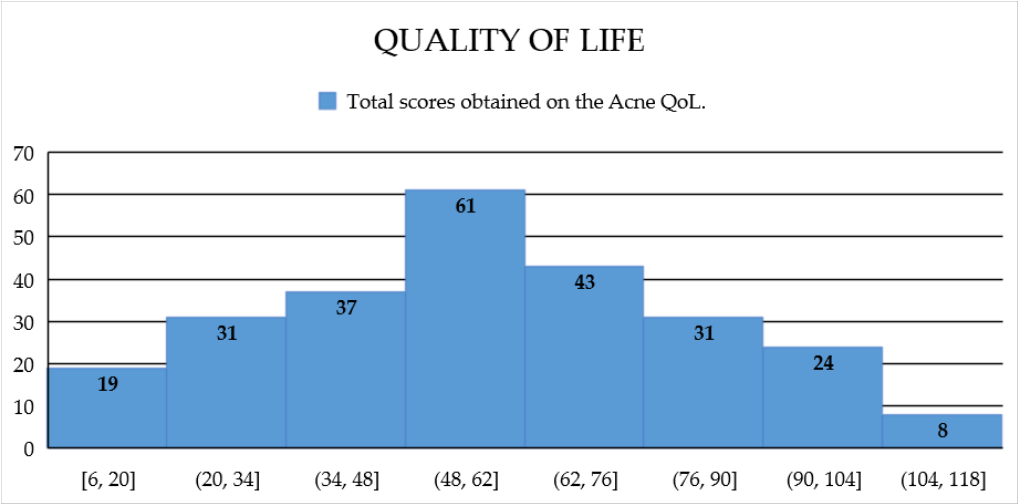
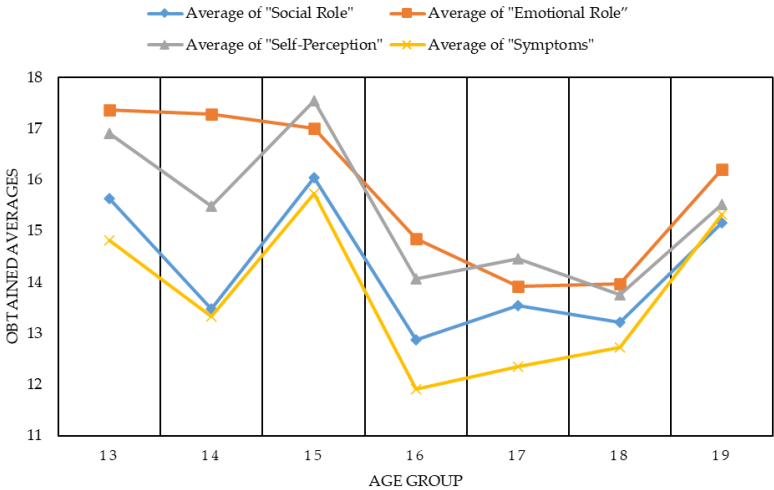**Figure 2**. Histogram of the total scores obtained on the Acne QoL.

Figure 3. Line chart displaying the average scores obtained in the four domains of the Acne QoL (emotional role, social role, self-perception, and symptoms) by age group.
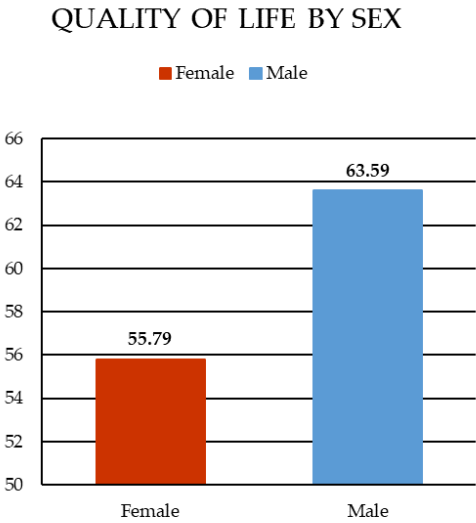

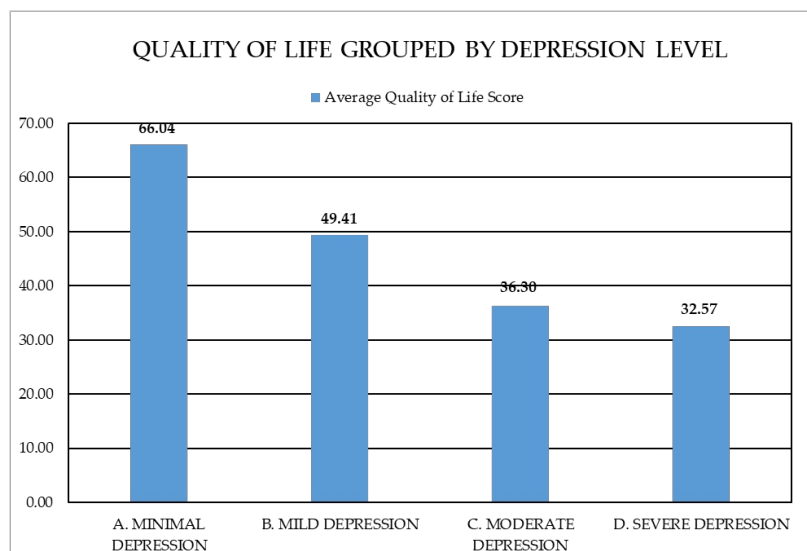**Figure 4**. Bar chart with average total scores obtained in quality of life, grouped by sex.

Figure 5. Bar chart with average quality of life scores obtained from patients according to their level of depression.
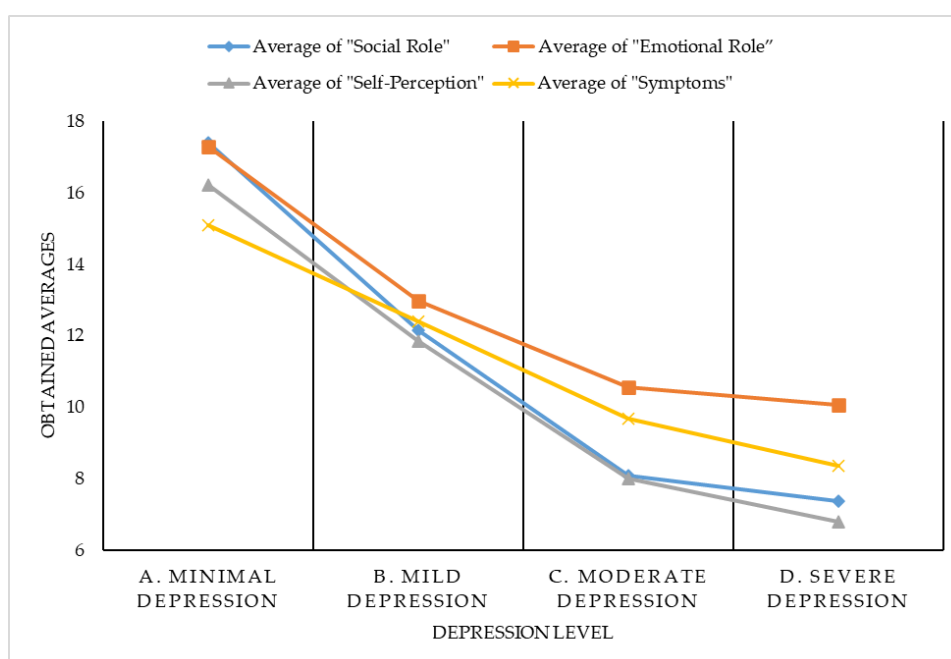

Figure 6. Line chart with average total scores obtained in the Acne QoL domains (emotional role, social role, self-perception, and symptoms) according to the level of depression.
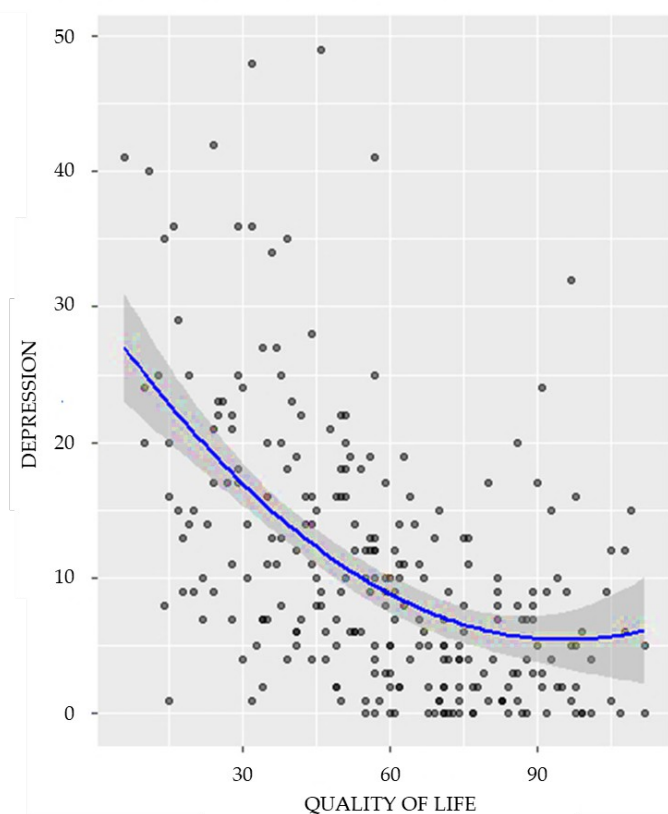
Figure 7. Curvilinear relationship between Quality of Life and Depression.

5. Discussion

An inversely proportional relationship was observed between the severity of depressive disorder and the total quality of life score. This association holds true when breaking down the different items weighted by the Acne QoL test. It is noteworthy that patients with a higher number of depressive symptoms are those who experience more pronounced depression and a more significant decrease in their quality of life. A previous meta-analysis highlighted that quality of life was significantly lower in patients with depression and anxiety compared to healthy individuals. Moreover, it was observed that patients in remission experienced an improvement in their quality of life. A remission pattern was identified, in which quality of life was a predictive factor for mental health (23). These results support the idea that as the severity of depression increases, the impact on quality of life becomes more pronounced.

In the analysis of perceived acne severity by patients, based on the symptoms evaluated through items 15, 16, 17, 18, and 19 of the Acne QoL test, a direct relationship was established between the scores obtained in these questions and the degree of depression manifested by the participants, as illustrated in figure 6. It was observed that as perceived symptomatology increased, the score obtained in the aforementioned items decreased, which is associated with a higher level of depression in adolescents. The perceived severity of acne by patients was directly proportional to the level of depression present in these individuals. These findings are consistent with the results of a cross-sectional study conducted in 2020 at Akdeniz University, Turkey, which concluded that acne patients tend to internalize society's negative stereotypes, a phenomenon known as "internalized stigmatization," which negatively impacts their quality of life and perception of acne. In this context, Acne QoL emerges as the most effective tool for predicting internalized stigma in these patients (24).

The average quality of life score for adolescents with acne was found to be 58.61, with a score range between 6 and 112 points. It is important to note that approximately 67.7% of the patients scored within the range of 35 to 90 points, while 19.6% scored below this range, and 12.59% scored above 90 points. Of the 254 adolescents with acne evaluated, approximately 30.7% showed a pathological level of depression. Within this group, 47% were diagnosed with mild depression, 34.6% with moderate depression, and 17.9% with severe depression.

The quadratic model explained 30.1% of the variability in quality of life, reinforcing its association with depression after adjusting for age and sex. These findings confirm that quality of life is a key predictor of depression in adolescents with acne, following a curvilinear pattern. The greatest reduction in depressive symptoms occurs at lower to moderate levels of quality of life, while the effect diminishes at higher levels. Other variables, such as age, marital status, occupation, and education, were not significant predictors of depression, suggesting that their influence may be limited. Although some studies have reported a significant correlation between quality of life and educational level in Indonesian teenagers with acne vulgaris (25), this highlights the importance of other factors that may play a more significant role in emotional regulation, such as family history of depression, low socioeconomic status, and increased use of social media use, which were not measured in this study. The model also revealed that males experience fewer depressive symptoms than females, which is consistent with previous studies showing that acne has a greater psychological impact on females. This is largely due to societal beauty standards that emphasize clear skin. While these standards apply to both genders, females face more social pressure to meet them (2). This increased pressure helps explain why females tend to have lower quality of life levels, as we previously established.

The results of a meta-analysis that examined the relationship between acne vulgaris and the risk of developing depression and anxiety support the findings of the present study by identifying a significant association between acne and the presence of depression and anxiety. This reinforces the idea that both acne and depression negatively impact the quality of life of adolescents. The correlation found between the presence of both comorbidities emphasizes the need to address not only the physical manifestations of acne but also the psychological implications, such as depression, in order to achieve a significant improvement in the quality of life of these patients during adolescence (20).

Those findings support the importance of designing intervention strategies that address both conditions to enhance the well-being and recovery of affected adolescents, such as the use of screening scales for the early diagnosis of depression in adolescents with acne. Schools can also implement educational programs with workshops for adolescents, parents, and teachers to raise awareness about the link between acne and mental health, helping them recognize depression symptoms and create a supportive environment. Moreover, mobile applications could be developed to provide self-management tools for both depression and acne. These apps could include emotional support activities, mood tracking, reminders for medication or appointments, and offer educational resources on both conditions.

This study has some limitations inherent to its design. First, because data were collected at one point in time, we cannot establish causal relationships between acne and depression. The use of self-reported measures to assess depression and quality of life could lead to response biases. It is important to note that the study did not inquire about previous treatments for acne or depression, which could provide additional context. Clinical interviews were not conducted to confirm the diagnosis of depression, which could have strengthened the findings. Since this study focuses on Mexican adolescents, the results may not apply to other populations. Despite these limitations, our study provides valuable insights into the relationship between acne and depression in this specific group.

6. Conclusions

- The analysis of depression prevalence across different age groups reveals distinct patterns. The 18-year-old group exhibited the lowest depression prevalence at 21.87%; however, 42% of these individuals were diagnosed with severe depression, which significantly impaired their quality of life. In contrast, the 19-year-old group, which showed the highest depression frequency at 38.5%, reported a better overall quality of life, as more than half of these patients were diagnosed with mild depression.

- This study confirms a close association between depression severity and quality of life, with lower depression severity linked to better quality of life. While acne is not typically considered a disabling condition, it acts as a risk factor for the development of depression in adolescents. Thus, the higher the Acne Quality of Life (QoL) score, encompassing self-perception, symptomatology, social role, and emotional role, the lower the likelihood of developing a depressive disorder.

- It is also important to emphasize that acne is a treatable condition, and since it is a risk factor for depression, addressing acne can significantly improve both depressive symptoms and overall quality of life. In cases where an adolescent with acne presents with clinical levels of depression, referral to a psychiatrist or psychologist is necessary. Conversely, when acne is identified in a patient presenting with depression, referral to a dermatology specialist should be considered, as treating acne can positively impact the adolescent's quality of life and improve the prognosis for both conditions.

- Unlike previous studies, our research highlights the strong link between acne and depression, two highly prevalent conditions among Mexican adolescents, recognizing their interaction and impact on quality of life. We explored key aspects such as social role, emotional well-being, self-esteem, and symptomatology across different age groups, offering insight into which adolescents are more vulnerable to developing depressive symptoms related to acne. Additionally, our findings reveal a higher risk of depression among adolescent females, emphasizing the need to consider this factor when diagnosing acne vulgaris. By integrating these perspectives, our study provides a deeper understanding of the risk factors associated with the coexistence of depression and acne, contributing to a more comprehensive clinical approach.

- This study highlights the limited research on the acne-depression relationship in Mexican adolescents, emphasizing the need for further investigation. Future studies are needed to explore how the association between acne and depression evolves over time and to determine the importance of factors such as internalized stigmatization, the severity of acne, and its impact on the mental health of adolescents with acne. Furthermore, the role of other factors not included in this study should be examined.

7. References

1. Öncü I, Gürel G, Akkoyun A. The relationship of acne with somatosensory amplification, health anxiety, and depression levels. *Cureus*. **2022,** 14(12), e32314. https://doi.org/10.7759/cureus.32314.

2. Natsuaki MN, Yates TM. Adolescent acne and disparities in mental health. *Child Dev Perspect*. **2021,** 15(1), 37-43. https://doi.org/10.1111/cdep.12397.

3. Muvdi S, Moreno S, Rodríguez V, et al. Evaluation of quality of life in patients with acne: validation of a measurement scale. *Med Cutan Iber Lat Am.* **2020,** 48(1), 29-40. https://doi.org/10.35366/93977.

4. Pantoja-Villa LF, Medina-Castillo DE, Avilés-Sánchez ME. Depresión y calidad de vida en pacientes con acné al inicio y al final de tratamiento. *Dermatol Rev Mex.* **2019,** 63(2), 123-43.

5. Álvarez-Mon MA, Pereira V, Ortuño F. Tratamiento de la depresión. *Medicine (Spain)*. **2017,** 12(46), 2731-42. https://doi.org/10.1016/j.med.2017.12.001.

6. Morrison J. DSM-5® Guía para el diagnóstico clínico. 1a ed. Morales-Velásquez JL, editor. México D.F., *Manual Moderno,* **2015.**

7. García-Parajuá P, Magariños-López M. Guía de bolsillo de la clasificación de los trastornos mentales y del comportamiento con glosario y criterios diagnósticos de investigación (CIE-10; CDI-10). España, *Editorial Médica Panamericana*, **2000.**

8. Jiang L, Yang D, Li Y, Yuan J. The Influence of Pubertal Development on Adolescent Depression: The Mediating Effects of Negative Physical Self and Interpersonal Stress. *Front Psychiatry*. **2021,** 12, 786386. https://doi.org/10.3389/fpsyt.2021.786386.

9. Cong TX, Hao D, Wen X, Li XH, He G, Jiang X. From pathogenesis of acne vulgaris to anti-acne agents. *Arch Dermatol Res.* **2019,** 311(5), 337-349. https://doi.org/10.1007/s00403-019-01908-x.

10. Goh C, Cheng C, Agak G, Zaenglein AL, Graber EM, Thiboutot DM, et al. Acneiform Disorders. In: Fitzpatrick's Dermatology. 9th ed. New York, *McGraw-Hill Education*, **2018,** 1391-418.

11. Zaenglein AL. Acne Vulgaris. *N Engl J Med*. **2018,** 379(14), 1343-52. https://doi.org/10.1056/NEJMcp1702493.

12. Heng AHS, Chew FT. Systematic review of the epidemiology of acne vulgaris. *Sci Rep.* **2020,** 10(1), 5754. https://doi.org/10.1038/s41598-020-62715-3.

13. Ahmed SH, El-Kelish AA, Hafeez NA, El-Bakry ST. Influential Factors of Depression in Patients with Moderate and Severe Acne. *J Clin Aesthet Dermatol*. **2020,** 13(2), 13-16. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7158912/

14. Álvarez-Mon MA, Vidal C, Llavero-Valero M, Ortuño F. Actualización clínica de los trastornos depresivos. *Medicine.* **2019,** 12(86), 5041-51. https://doi.org/10.1016/j.med.2019.09.012.

15. Schnaas F. Avances en el diagnóstico y tratamiento de la ansiedad y la depresión. *Rev Neurol Neurocir Psiquiat.* **2017,** 45(1), 22-25. https://www.medigraphic.com/pdfs/revneuneupsi/nnp-2017/nnp171e.pdf.

16. González DA, Reséndiz-Rodríguez A, Reyes-Lagunes I. Adaptation of the BDI-II in Mexico. *Salud Ment*. **2015,** 38(4), 237-44. https://doi.org/10.17711/sm.0185-3325.2015.033.

17. Nogales AI, Ramos LE, Del Valle M, Carrillo JL. Detección, diagnóstico y tratamiento del trastorno depresivo mayor en infancia, adolescencia y adultez en el primer y segundo nivel de atención. *CENETEC.* **2022.** https://www.cenetec-difusion.com/CMGPC/GPC-SS-832-22/ER.pdf.

18. Hohls JK, König HH, Quirke E, Hajek A. Anxiety, Depression and Quality of Life-A Systematic Review of Evidence from Longitudinal Observational Studies. *Int J Environ Res Public Health.* **2021,** 18(22), 12022. https://doi.org/10.3390/ijerph182212022.

19. Kotekoglu D, Parlakdag A, Koramaz FS, Varol G, Aslankoc V, Bozkurt S, Memis C, Karakas AA, Alpsoy E. Internalized stigma in acne vulgaris and its relationship with quality of life, general health, body perception, and depression. *Niger J Clin Pract*. **2020,** 23(9), 1289-1294. https://doi.org/10.4103/njcp.njcp_86_20.

20. Umborowati MA, Ollyvia ZZ, Febriyana N. The impact of acne vulgaris on the quality of life in teen patients. *J Berkala Epidemiol.* **2022,** 10(2), 189-98. https://e-journal.unair.ac.id/JBE/article/view/27151.

21. Nogales AI, Rodriguez H, Cortés GM, Cabrera II. Guía clínica, Depresión en niños y adolescentes. México, *Secretaría de Salud*, **2009.** https://www.gob.mx/cms/uploads/attachment/file/452952/3._Depresi_n_en_Ni_os_y_Adolescentes.pdf.

8. Appendix

INFORMED CONSENT LETTER

I, _____, voluntarily agree to participate in the study titled "Depression and Quality of Life in Adolescent Acne Patients, 2023-2024," conducted by the General Practitioner Carolina Jaime Estrada, a graduate of the Universidad Autónoma del Estado de México (Autonomous University of the State of Mexico). The purpose of this study is to assess the quality of life and the frequency of depression in adolescent patients with acne.

I have been provided with detailed information regarding the objectives, procedures, and potential risks involved in this study, including the surveys I will be required to complete. I have been informed that my participation is entirely voluntary, and I may withdraw from the study at any time, even after signing this consent form, without any consequences or loss of benefits to which I am entitled.

I understand that this study involves no risk to my health (or the health of my child, if applicable), and that all information collected will be kept strictly confidential. Personal data will not be used for any purposes other than those directly related to this study.

I acknowledge that I have had the opportunity to ask any questions regarding the study, and I have received satisfactory answers to all of them. By signing this consent form, I agree to participate in the study under the conditions outlined above.

_____   _____

Patient Signature   **Principal Investigator's Signature**

_____
Witness's Name and Signature