Multi-Disciplinary Publishing Institute Pakistan **Vol. 4, N0. 1**

Submitted: 12 SEP 2025 Accepted: 20 SEP 2025 Published: 21 SEP 2025

Acne Vulgaris among Youth: Its Prevalence, Knowledge, and Lifestyle Association

Review Article

Dr. Noor Ul Huda (RPh)[1], Dr. Shah Behram (RPh)[2], Dr. Abid Hussain[3]

[1]Department of Pharmacy, University of Poonch, Rawalakot, AJ&K, Pakistan.

[2]Faculty of Pharmacy, Gomal University, Dera Ismail Khan, Pakistan.

[3]Associate Professor Department of Pharmacy, Faculty of Medical and Health Sciences, University of Poonch Rawalakot Azad Kashmir, Pakistan

Corresponding Author: Dr. Abid Hussain[4]
Email: drabidhussain@upr.edu.pk

Citation

Huda, N. Ul., Behram, S., Hussain, A. (2025). Acne Vulgaris among youth: Its prevalence, knowledge, and lifestyle association. *Open Access Public Health and Health Administration Review*, 4(1), 191-204.

WEBSITE: www.mdpip.com
ISSN: Print: 2959-619X
ISSN: Online: 2959-6203
PUBLISHER: MDPIP

Abstract

Acne vulgaris, a common skin condition, causes social anxiety and emotional distress, particularly among young people aged 15-30. With its increasing global prevalence, it's crucial to educate the public, especially youth, about this disease. This study aimed to assess the basic knowledge of acne vulgaris among young adults and to review its prevalence and association with lifestyle factors. The research involved an observational study and an 18-question survey, which covered participants' demographics, their understanding of acne's causes and effects, and their knowledge of its treatments and management. Conducted among 182 medical students, the study found that while 59.1% had a good understanding of the disease and its causes, a significant portion (37.6%) was poorly informed about its prevalence and effects. The results highlight a continued lack of awareness about acne and the potential complications of untreated cases, indicating a need for greater community education. This narrative review aims to provide a quick and easy-to-understand resource to help individuals better grasp the fundamentals of acne vulgaris and its outcomes, thereby enhancing awareness within the community.

Keywords: Acne Vulgaris, Youth, Prevalence, Knowledge, Lifestyle Association, Narrative Analysis.

Introduction

One of the most prevalent dermatological conditions in the world, acne vulgaris is a chronic inflammatory disorder of the skin that affects the pilosebaceous unit (Zhu, *et al*., 2025). Up to 90% of teenagers and young adults are affected, and it is typified by a variety of lesions that mostly affect the face, chest, and back (Toy *et al*., 2023). These include comedones, papules, pustules, and in more severe cases, painful nodules and cysts. Although it is not a lethal illness, it causes a great deal of psychological suffering because it is visible on exposed body parts (Deya *et al*., 2020).

Acne's effects go much beyond its outward manifestations. Patients and healthcare professionals frequently underestimate the disease's significant psychological and social effects (Kostecka *et al*., 2022). Acne sufferers usually have a worse quality of life, characterized by poor self-esteem, social disengagement, and humiliation. According to research, some studies even suggest that the psychological toll of acne might be as high as that of other chronic conditions like epilepsy or asthma (Raznatovic Durovic *et al*., 2021). Adolescents are especially affected since this might disrupt important developmental phases linked to self-confidence and body image. There is a sizable treatment gap because, despite the existence of efficient therapies, a sizable segment of the afflicted population is either ignorant about the fundamentals of the illness or its possible repercussions (Savo *et al*., 2020).

By investigating the prevalence, knowledge, and lifestyle correlations with acne vulgaris in young people, this study seeks to close this important information gap. The main goals are to evaluate young people's fundamental understanding of acne vulgaris, with a particular emphasis on medical students, and to present a narrative assessment of the condition's prevalence and correlation with the lifestyle of those who are afflicted (Benjamin *et al*., 2023). Knowing the degree of knowledge in a society is crucial, given the rising incidence of acne worldwide and its significant psychological effects (Moosa *et al*., 2023). There is still a need for research that focuses on the knowledge levels and lifestyle connections within cultures like Pakistan, where the study was done, even though many studies have examined the clinical aspects and psychological repercussions of acne in Western nations (Adah *et al*., 2023). Through examining the lifestyle characteristics and knowledge gaps among medical students, a demographic that has natural access to medical information, this study offers insightful information that may be utilized to create focused educational initiatives (Luqman *et al*., 2025). The results are important because they show that there is still a paucity of knowledge about a condition that can cause long-lasting psychological damage and severe physical scars if treatment is not received. Therefore, this study is an important step in raising awareness and promoting the use of appropriate treatment methods to lessen the effects of the condition in the community (Witkam *et al*., 2024).

Literature Review

Acne vulgaris is an inflammatory disorder of the pilosebaceous unit, which runs a chronic course, and it is self-limiting (Diyanah *et al*., 2025). Acne vulgaris is triggered by *Cutibacterium acnes* in adolescence, under the influence of normal circulating dehydroepiandrosterone (DHEA) (Tunçer *et al*., 2022). It is a very common skin disorder that can present inflammatory and non-inflammatory lesions chiefly on the face, but can also occur on the upper arms, trunk, and back (Yan *et al*., 2018). Acne occurs due to hypersensitivity of the sebaceous glands to a normal circulating level of androgens, which are aggravated by *P. acne* and inflammation (Juhl *et al*., 2018).

The skin is the body's main interface with the external world (George *et al.*, 2018). It is considered the body's major public relations tool. Skin disorders harm individuals, especially in terms of their own image and in quality of life (QoL) (Motosko *et al*., 2019). The prevalence of acne varies from 28.9 to 91.3% among adolescents (Morrison *et al.,* 2010). Acne is often visible on the face, heightening issues of body image and socialization. Therefore, it is not surprising that an individual with facial acne may develop significant psychosocial disability (Smith *et al*., 2007). Adolescents are constantly concerned with images of perfection. When the exceedingly visible burden of acne is added, it might be the proverbial straw that tips them over into some functional or emotional abyss (Logan *et al.*, 2007). Studies on the psychological impact of acne have documented dissatisfaction with appearance, embarrassment, self-consciousness, and low self-esteem (Gollnick *et al*., 2003). In this age group, patients are not mature enough to face such an impact caused by acne deforming lesions. Considering all negative repercussions in a psychosocial context, acne has great potential for jeopardizing QoL (Strauss *et al*., 2007). There is a need for studies in which the impact of acne on adolescents' quality of life is investigated by reliable measures. Such investigations might attract the attention of

dermatologists to the psychosocial aspects of acne. Even this may have a contribution as a first step for adolescents to seek help for acne (Kubba *et al*., 2009). A patient with acne usually presents with a history of 'spots,' most commonly affecting the face, back, chest, and shoulders. Systemic symptoms are often absent, but the patient may describe local symptoms of pain, erythema, or tenderness (Nast *et al.*, 2012). Additionally, acne can have a psychological impact, regardless of the severity of the disease (Goodfield *et al*., 2010). When taking a history, it is important to enquire about the duration of symptoms, aggravating factors, any over-the-counter preparations that have been tried, and the psychosocial impact of the disease, particularly at work or school (Ozçelik *et al*., 2018). In female patients, consider whether acne could be secondary to hyperandrogenism, and enquire about irregular menstrual cycles, hirsutism, androgenic alopecia, premenstrual flaring of acne lesions, or sudden onset severe acne (Alexeyev *et al*., 2018). Psychosocial factors are often overlooked but must not be taken lightly. Acne can have a severe negative impact on a person's life and is often underestimated by healthcare professionals (Eyuboglu *et al*., 2018). Validated quality-of-life scoring systems such as the Cardiff Acne Disability Index can be used to monitor psychological state (Cunliffe *et al.,* 2001). Individuals in whom acne has a marked psychosocial impact may need more aggressive treatment or early referral to a specialist (Alajlan *et al*., 2017).

The prevalent bacterium implicated in the clinical course of acne is *Propionibacterium Acnes (P. acnes)*, a gram-positive anaerobe that normally inhabits the skin and is implicated in the inflammatory phase of acne (Abbas *et al*., 2021). Gram-negative folliculitis is typically characterized by pustules and/or nodules, most located in the perioral and nasal areas (Alshammrie *et al*., 2020). Gram-negative folliculitis is caused by a variety of bacteria and is unresponsive to conventional antibiotic therapy for acne. Although androgens play an important role in the pathogenesis of acne, most patients have normal hormone levels (Wolkenstein *et al*., 2018). Presently, there is little evidence from peer-reviewed literature indicating that routine endocrinologic testing has clinical value in the evaluation of patients with acne (Oztekin *et al*., 2020). Patients whose history or physical examination suggest hyperandrogenism may, however, benefit from such testing (Prakesh *et al*., 2025). In pre-pubertal children, the signs include acne, early-onset body odor, and axillary or pubic hair. Several systems for grading acne exist; most employ lesion counting combined with some type of global assessment of severity (e.g., mild, moderate, severe) that represents a synthesis of the number, size, and extent of lesions. However, there is no consensus on a single or best grading or classification (Kostecka *et al*., 2022).

Methods and Materials

This narrative study implies simple cross-sectional and observational patterns in the community surroundings. A convenient and valid questionnaire was designed for data collection, and this data focused mainly on youth, especially medical students, in random platforms.

Study Settings and Sampling

People from randomized platforms and different community setups participated in this study, among the major areas covered by medical students. This study comprised undergraduates as well as job employees who were linked with medical and non-medical categories from randomized communities. As is already mentioned in the above key point categories that people from random communities were involved in this study, so, sample size can be calculated by following the formula:

Sample size = No of items in questionnaire x 5, thus 18 x 5 = 90. Hence, the sample size of my study was 90. Both exclusive and inclusive criteria were involved:

1. **Inclusive Criteria:** Undergraduates and job employees from random communities and work fields were included (both medical and non-medical).
2. **Exclusive Criteria:** People under the age of 15 were not included in this category of the questionnaire.

Data Collection and Analysis

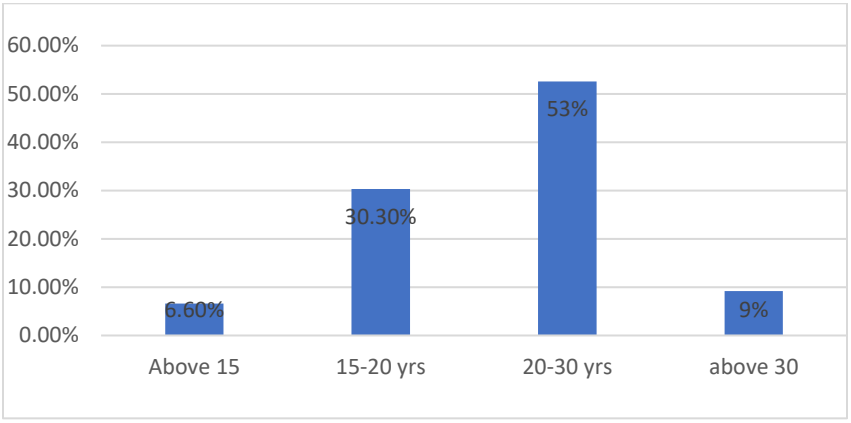
When I got the approval and guidance about the protocols then I designed a valid and tested questionnaire related to a research-based study of acne vulgaris with the help of Google Form**,** and then I distributed that questionnaire to people from random communities in Pakistan. This data is analyzed using some protocols that involve MS Excel and SPSS. Data was categorized according to the percentage and frequency of the study.

Results and Findings

The above highlighted study comprised 182 participants, out of which females covered 57.9% while males covered 41.4% of the total population. Major coverage of 52.6% was seen in the ages between 20-30 years, 30.3% was seen in the ages between 15-20 years, among which above 30 years covered the total of 6.6 of % population. The highest percentage of participation was seen in Pharm-D students, and others belonged to different categories of field areas. This study was done through an online questionnaire response form, which comprised 18 queries that were directed to be filled out and submitted by the youth of different categories from random communities in Pakistan. The following data represents the graphical analysis of results obtained through the questionnaire responses.

Graph 1

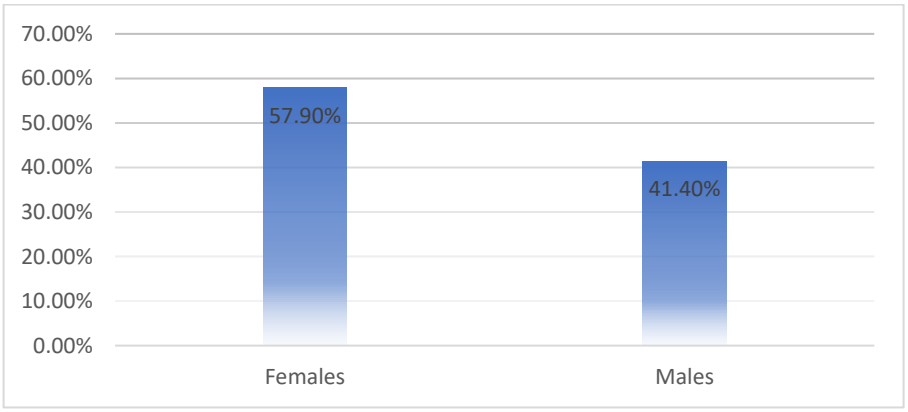
Describe the Age of the Respondents



Through Graph 1, graphical analysis, it can be clearly concluded that people who participated in this research-based study belong to different age groups majority of which are in the youth category. This data denotes that people who actively participated in this study belonged to age groups ranging between 15-20 years and 20-30 years, respectively, with their percentage counts being 30.30% and 53% respectively

Graph 2

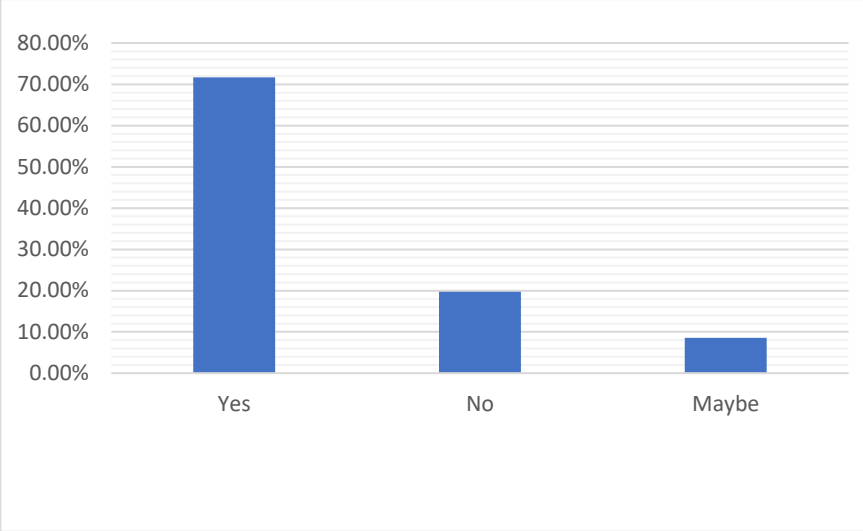
Describe the Gender of the Respondents



Graph 2 represents the gender of the overall population that participated in this research. It can be analyzed that the percentage of female participants is greater than that of males, i.e., 57.9% and 41.4% respectively. Through this analysis, it can be interpreted that acne vulgaris affects females more as compared to males.

Graph 3

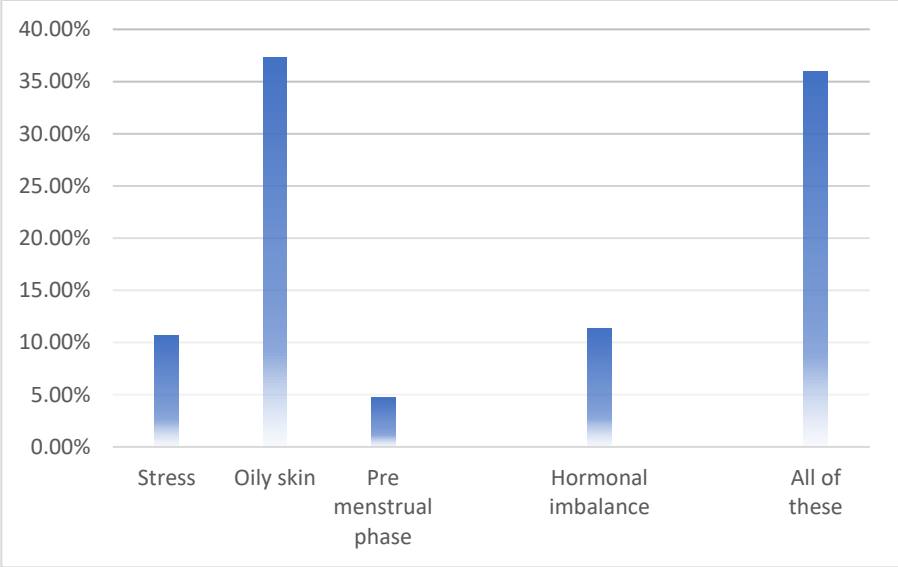
Awareness about Acne Vulgaris



Graph 3 shows the data of participants' knowledge about acne vulgaris, and it can be clearly seen that out of the total participants, 71.7% participants had a basic awareness of this disease, but 19.7% participants were still not aware of it.

Graph 4

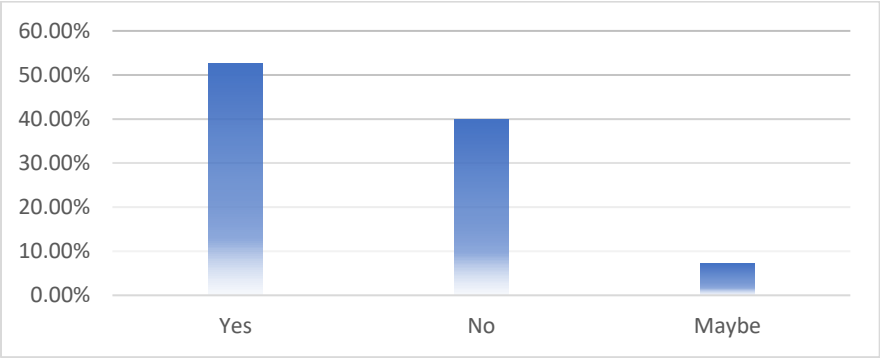
Causes of Acne Vulgaris



Graph 4 represents the knowledge of participants about the causes of acne. Through this analysis it can be interpreted that majority people took oily skin as a major cause of acne and this response covered the total of 37.3% ratio whereas only 36% of them knew about the actual causes of acne because it doesn't only effect the people having oily skin but it effects those people badly that are porn to stress, oily skin, pre-menstrual phase and hormonal imbalance (majority in females suffering with PCOS).

Graph 5

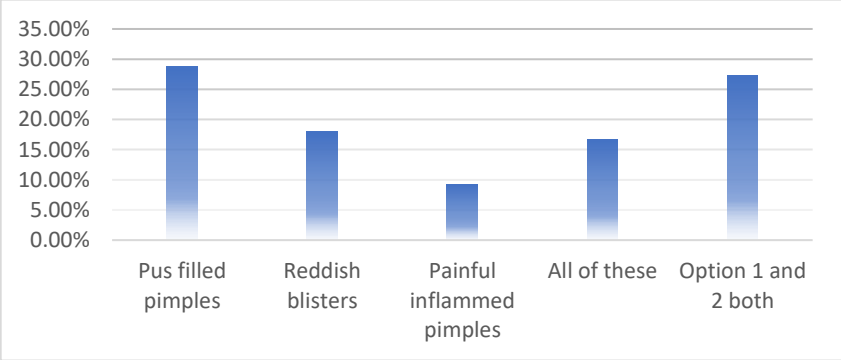
Respondents Acne Experience



Graph 5 highlights the representation of another query, which clearly denotes that 52.7% of the total population suffered from acne, and 40% did not have acne, while 7.3% people were not sure about it as they did not have sufficient knowledge about this disease due to a lack of awareness.

Graph 6

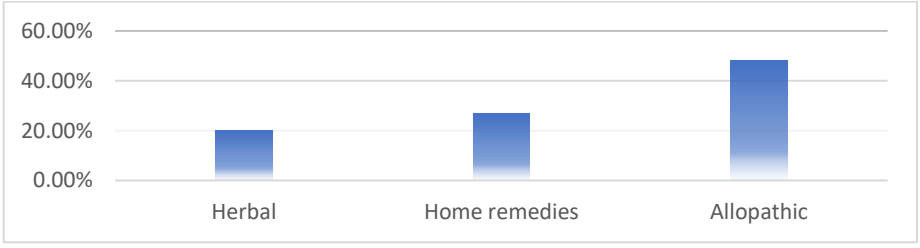
Acne Vulgaris Involves



According to Graph 6, Acne varies in accordance with the skin types, but it involves all the conditions, including pus-filled pimples, reddish blisters, and painful, inflamed pimples. According to the above graphical analysis, it is concluded that only 16.7% of the total population knew about acne conditions, while others had a very poor knowledge about its severity due to a lack of awareness and counselling in our communities.

Graph 7

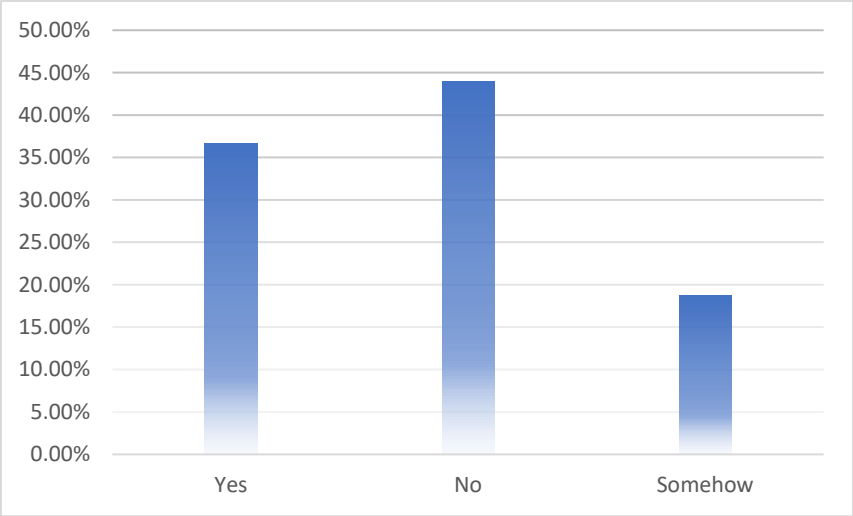
Effective Treatment for Acne



Graph 8shows the result of responses that participants have mentioned, according to which it claims that most of the population, covering 48% considered Allopathy as a more effective treatment therapy for acne, while 36.7% of people cured their acne using home remedies.

Graph 8

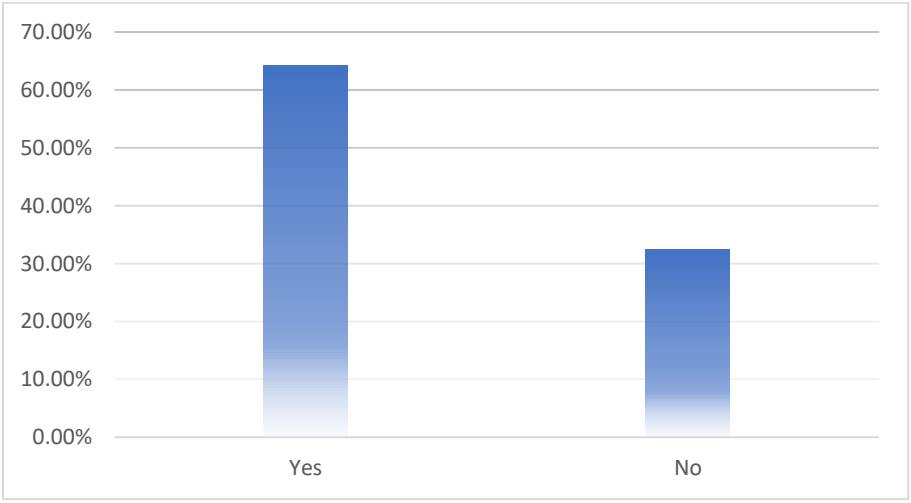
Acne Treatment Experience



In the above graph 8, it is clearly interpreted that even after suffering from acne, most of the participants did not follow any treatment to get it cured. As this data shows, 44% of the total population did not come up with any sort of treatment, while only 36.7% of them treated their acne.

Graph 9

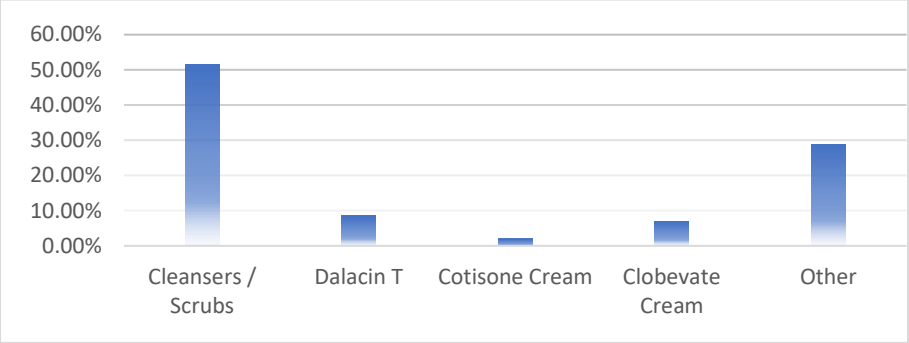
Visit to Dermatologist for Acne Treatment



Graph 9clearly denoting that out of the total participants, only 32.4% people visited a dermatologist to get a proper counselling and possible acne treatment, but unfortunately, due to poor awareness and lack of education in some communities of Pakistan a high ratio of people, covering 64.2% (due to embarrassment) did not visit any doctor for its checkup and were left untreated.

Graph 10

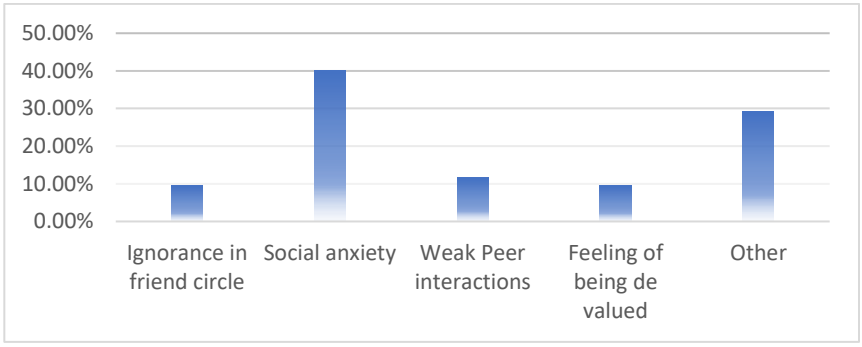
Type of Treatment from a Dermatologist



As shown in Graph 10, most of the population, covering 51.4%, have got Cleansers and scrubs as a treatment for their acne, while 28.9% of the total population went for some other treatments that might include home remedies or herbal treatments (treatment effects depend upon their skin types, as the results vary according to their skin).

Graph 11

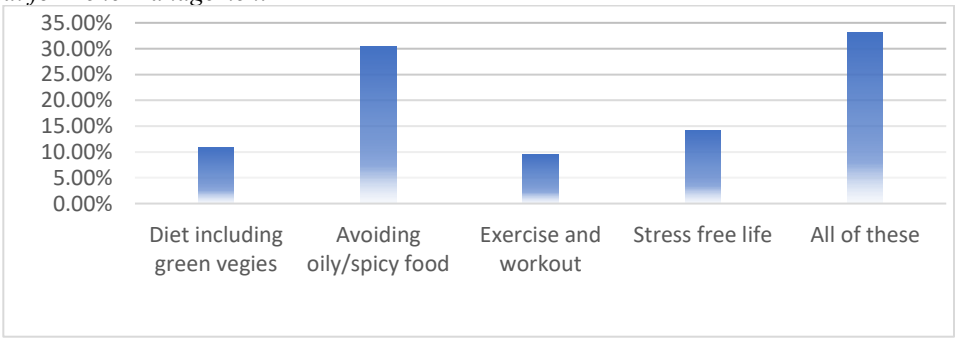
Psychological Effects of Acne



Through the above 11th graphical analysis, it can be interpreted that 40.1% of the participants have faced a social anxiety disorder while having acne. On the other hand, 11.6% of them faced difficulty in interacting with peers with confidence, while 9.5% of them had a feeling of being ignored and devalued among their friend circles. 29.3% of the participants suffered some other psychological changes (disfigurement, embarrassment, depressive episodes, and suicidal thoughts).

Graph 12

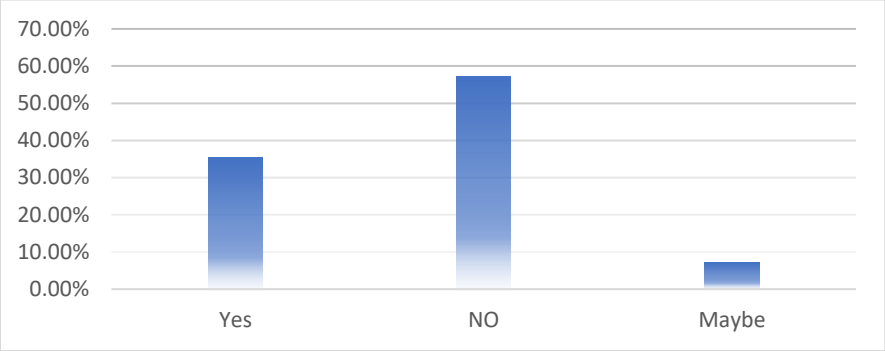
Factors beneficial for Acne Management



The above data in Graph 12 represents a measured ratio of responses to the highlighted query. According to many studies, it has been concluded that all the factors are important in acne management, which include a healthy diet, including green vegetables, a stress-free life, glycemic index management by avoiding oily, sweet, and spicy food, and regular exercise and workout. Only 33.1% of participants had a good knowledge of these factors, while 30.4% considered avoiding spicy food a better option.

Graph 13

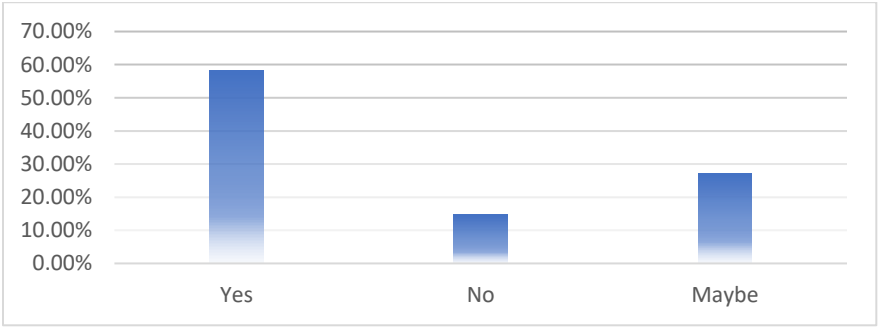
Existence of Acne after Treatment



The Above graph 13 represents the result of the treatment that participants mentioned. 57.3% of participants did not have acne anymore, which shows a positive side of treatment, which they came up with, while 35.3% were those who did not experience any positive outcome of that treatment, and some had poor knowledge about their recovery.

Graph 14

Can Ance be Cured



It can be interpreted from the above graph 14 that the participants have met a positive outcome after getting their specific treatment. As it can be clearly visualized that 58.3% of the participants were confident on their response which denotes that according to their experience, acne can be cured completely but still a handsome ratio of participants covering 26.2% was confused whether it can be completely cured or not because of the lack of counselling and awareness which leads to a poor knowledge in different communities of Pakistan.

Discussion

Some degree of acne affects almost all people aged 15 to 17 years, 11–13 and is moderate to severe in about 15–20% (Shen *et al*., 2012). Prevalence estimates are difficult to compare because definitions of acne and acne severity have differed so much between studies, and because estimates are confounded by the availability and use of acne treatments (Zhu *et al*., 2025). 15 Surveys of self-reported acne have proven unreliable (Seetan *et al*., 2023). 26 studies, although perceived as a teenage disease, acne often persists into adulthood. One population study in Germany found that 64%

of those aged 20 to 29 years and 43% of those aged 30 to 39 years had visible acne (Huei *et al.,* 2022). 19 other studies of more than 2000 adults showed that 3% of men and 5% of women still had definite mild acne at the age of 40 to 49 years (Bagatin *et al*., 2014). Acne accounts for more than 3.5 million general practitioner appointments per year (Raznatovic *et al*., 2021). It affects 80% of people at some point between 11 and 30 years of age. During adolescence, acne is more common in male than female patients (Adah *et al*., 2023). Acne can also occur in adults and is more prevalent in women. It can develop for the first time over the age of 25 years and is thought to affect up to 20% of women and 8% of men (Syafira *et al*., 2025). Of those suffering from the disease, 20% have severe disease that is likely to lead to scarring (Heng *et al*., 2022).

Diagnostic investigations are not typically required in acne, as the diagnosis is clinical. However, in female patients with signs of hyperandrogenism, hormonal investigations can be required to exclude conditions such as polycystic ovarian syndrome (PCOS) and congenital adrenal hyperplasia (Jaber *et al*., 2020). Usual blood screening tests include total and free testosterone, luteinizing hormone, follicle-stimulating hormone, dehydroepiandrosterone, 17-hydroxyprogesterone, prolactin, 21b-hydroxylase (Alkhalifah *et al*., 2022). These should be checked in the luteal phase of the menstrual cycle, that is, just before the onset of menses. To improve accuracy, patients should be asked to stop oral contraceptives 1 month before testing. It is also worth bearing in mind that many adult women with an androgen drive to their acne do not have elevated circulating hormone concentrations (Al Hussein *et al*., 2016). Acne may not be life-threatening, but it has lifelong psychosocial effects. People with acne and acne scars often develop anxiety and depression. The acne scars are almost impossible to correct. A study from Sweden suggests that acne in teenage boys may be a risk factor for prostate cancer development late in life. The overall prognosis of acne is good with treatment (Shabnam *et al*., 2018).

According to this study in different communities of Pakistan, it can be clearly seen that acne affects females in adolescence more as compared to males, and the cause of this is due to menstrual cycle irregularities or hormonal imbalance in them (Kamel *et al*., 2022). These causes can be prevented if our community gets an enriched guideline about the outcomes of acne and its etiology. A proper treatment guideline and a courage of belief will help in enhancing the potential gain of information among different communities of Pakistan.

Conclusion

This research-based study has helped me to conclude that Acne Vulgaris has many root causes. It is basically an inflammation of some glands in our skin, but it can be triggered by different other factors, including bacterium like *P. acnes,* hormonal imbalance, and irregular menstrual cycle, which may be caused due to PCOS in adult females, as a major ratio of acne is seen in females as compared to males. Another major factor that can trigger this disease is stress and an imbalanced diet containing mainly fats. Acne Vulgaris hurts young people as their psychological issues are being reported because a negative change is seen in their social lives, which causes anxiety, depression, and many other depressive episodes, because of being treated as separate creatures, being devalued among their circle, and their fear of being judged, which is termed as social anxiety. There is no specific treatment for this disease because treatments vary in people having different skin types, but most people have been cured completely with the treatment they receive. Still, a handsome population of Pakistan's community is unaware of Acne due to a lack of education and counseling, which is why most people get scarred skin after having acne, as they don't know about its outcomes. Some awareness seminars and campaigns should be launched to educate people about acne vulgaris, its possible treatments, and the outcomes that they will have to face if they do not have any knowledge about its severity. Moreover, sufferers of acne vulgaris should get psychotherapy to overcome their social anxiety and make themselves courageous to deal with their social disfigurements.

Future Research Directions

Investigating novel therapeutic modalities outside of traditional therapies is a crucial avenue. This involves ongoing research into new topical medications like minocycline foam and clascoterone cream, as well as procedural therapies like microneedling and sophisticated laser technology. Additional research on the gut-skin axis is also desperately needed, with an emphasis on how nutrition and gut microbiota affect acne etiology.

Furthermore, future studies should focus more on the quality of life (QoL) of acne sufferers, considering the psychological impact you mentioned in your work. Finally, gauge the emotional suffering and social anxiety linked to the illness, which involves creating and verifying the QoL. Finally, even though your study offers insightful information on the Pakistani setting, further empirical, localized research is required to comprehend the precise prevalence, knowledge gaps, and lifestyle links within various communities. In the end, this will lessen the burden of the illness and its long-term consequences, such as scarring, by assisting in the development of focused public health campaigns and educational seminars to increase awareness and treatment adherence.

Declarations

Ethical Approval and Consent to Participate: This study strictly adhered to the Declaration of Helsinki and relevant national and institutional ethical guidelines. Informed consent was not required, as secondary data available on websites was obtained for analysis. All procedures performed in this study were by the ethical standards of the Helsinki Declaration.

Consent for Publication: Here, we, the authors, give our consent for publication.

Availability of Data and Materials: Data will be provided upon written request from the corresponding author.

Competing Interest: We confirm that we have no conflict of interest.

Funding: Not applicable.

Authors' Contribution: NUH, SB: conceived the idea and literature review. AH, MFK: collected the data. NUH, SB, AH, MFK: developed methodology, did data analysis, editing, proofreading, edited, and submission of the article to the journal for publication.

Acknowledgement: The researchers are thankful to their colleagues and respondents of the study, who took their precious time to answer the questions for one more study.

References

Abbas, H., Awan, J., & Ishfaq, M. (2021). Acne vulgaris in university students: Prevalence, knowledge, and lifestyle association. *Pakistan Journal of Surgery and Medicine,* (3(2), 49-57.

Adah, R., Yusufu, H., & Otene, Q. A. V. (2023). Epidemiology and perception of acne among adolescents in Jos, Nigeria: Cross-sectional school-based study. *JMIR Dermatology*, *6*(1), e44441.

Al Hussein, S. M., Al Hussein, H., Vari, C. E., Todoran, N., Al Hussein, H., Ciurba, A., & Dogaru, M. T. (2016). Diet, smoking, and family history as potential risk factors in Acne Vulgaris: A community-based study. *Acta Medica Marisiensis*, *62*(2).

Alajlan, A., Al Turki, Y. A., AlHazzani, Y., Alhowaish, N., AlEid, N., Alhozaimi, Z., & Alsuwaidan, S. (2017). Prevalence, level of knowledge, and lifestyle association with acne vulgaris among medical students. *Journal of Dermatology & Dermatologic Surgery*, *21*(2), 58–61.

Alexeyev, O. A., Dekio, I., Layton, A. M., Li, H., Hughes, H., Morris, T., Zouboulis, C. C., & Patrick, S. (2018). Why do we continue to use the name *Propionibacterium Acnes*? *British Journal of Dermatology*, *179*(5), 1227.

Alkhalifah, A., Alkhowailed, M. S., Shariq, A., Rasheed, Z., Alhomaidan, H. T., Hamad, E. M., & Al, W. (n.d.). *Epidemiology of Acne vulgaris and its Link to Lifestyle among Adolescents and Young Adults*.

Alshammrie, F. F., Alshammari, R., Alharbi, R. M., Khan, F. H., Alshammari, S. K., & Alharbi, R. M. (2020). Epidemiology of acne vulgaris and its association with lifestyle among adolescents and young adults in Hail, Kingdom of Saudi Arabia: A community-based study. *Cureus*, *12*(7).

Bagatin, E., Timpano, D. L., Guadanhim, L. R. D. S., Nogueira, V. M. A., Terzian, L. R., Steiner, D., & Florez, M. (2014). Acne vulgaris: prevalence and clinical forms in adolescents from São Paulo, Brazil. *Anais Brasileiros de Dermatologia*, *89*(3), 428–435.

Benjamin, G. T., Kemperman, P. M., Kuckulus, J., Hoekzema, R., & Vulink, N. C. (2023). Body dysmorphic disorder and self-esteem in adolescents and young adults with acne vulgaris. *Acta Dermato-Venereologica*, *103*, 6232.

Cunliffe, W. J., & Gollnick, H. P. (2001). *Acne: Diagnosis and management*. Martin Dunitz Ltd.

Deyab, A. A., Faraz, A., Abdelrahim, S. A., AbdulRahman, B. A., Alfaleh, Y., & Almutairi, K. A. E. (2020). Prevalence, awareness, and psychological impact of Acne Vulgaris among university students. *J. Res. Med. Dent. Sci*, *8*, 68–730.

Diyanah, U., Widiyawati, W., Ernawati, E., & Widiharti, W. (2025). Relationship between the severity of Acne Vulgaris on the face and self-confidence in adolescents. *Innovation Research Journal*, *6*(1), 102–108.

Eyüboglu, M., Kalay, I., & Eyüboglu, D. (2018). Evaluation of adolescents diagnosed with Acne Vulgaris for quality of life and psychosocial challenges. *Indian J Dermatol*, *63*(2), 131–135.

George, R. M., & Sridharan, R. (2018). Factors aggravating or precipitating acne in indian adults: A hospital-based study of 110 cases. *Indian J Dermatol*, *63*(4), 328–331.

Gollnick, H., Cunliffe, W., Berson, D., Dreno, B., Finlay, A., Leyden, J. J., & ... (2003). Management of acne: A report from a global alliance to improve outcomes in acne. *J Am Acad Dermatol*, *49*(1), s1–38.

Goodfield, M., Cox, N., Bowser, A., & ... (2010). Advice on the safe introduction and continued use of isotretinoin in acne in the UK. *Br J Dermatol*, *162*, 1172–1179.

Heng, A. H. S., Say, Y. H., Sio, Y. Y., Ng, Y. T., & Chew, F. T. (2022). Epidemiological risk factors associated with acne vulgaris presentation, severity, and scarring in a Singapore Chinese population: a cross-sectional study. *Dermatology*, *238*(2), 226–235.

Huei, L. T., Badaruddin, N. S. F. B., & Phd, P. M. (2022). Prevalence and psychosocial impact of acne vulgaris among high school and university students in Sarawak, Malaysia. *Med. J. Malays*, *77*, 446.

Jaber, R. M., Alnshash, B. M., Mousa, S. N., Fayoumi, H. S., Al-Qaderi, L. M., & Zant, A. M. (2020). The epidemiology of acne vulgaris among adolescents and young adults in Jordan University Hospital. *Open Journal of Nursing*, *10*(4), 353–366.

Juhl, C. R., Bergholdt, H. K. M., Miller, I. M., Jemec, G. B. E., Kanters, J. K., & Ellervik, C. (2018). Dairy intake and Acne Vulgaris: A systematic review and meta-analysis of 78,529 children, adolescents, and young adults. *Nutrients*, *10*(8).

Kamel, H. M. H., Abdel-Mohesen, A. S., Gomaa, A. A. A., & Mahmoud, M. T. (2022). Risk factors of acne vulgaris in preparatory school students in Fayoum City. *RISK*, *5*(2), 124–145.

Kostecka, M., Kostecka, J., Szwed-Gułaga, O., Jackowska, I., & Kostecka-Jarecka, J. (2022). The impact of common acne on the well-being of young people aged 15–35 years and the influence of nutrition knowledge and diet on acne development. *Nutrients*, *14*(24), 5293.

Kubba, R., Bajaj, A. K., Thappa, D. M., Sharma, R., Vedamurthy, M., Dhar, S., & ... (2009). Acne in India: Guidelines for management - IAA Consensus Document. *Indian J Dermatol Venereol Leprol*, *75*, 1–64.

Logan, A. C. (2007). Dietary fat, fibre, and acne vulgaris. *J Am Acad Dermatol*, *57*, 1092–1093.

Luqman, M., Rehman, M. A., Akhtar, S., Yawar, W., Alam, M. T., Kashif, S. M., & Anjum, N. (2025). Acne Vulgaris amongst students: Mapping severity prevalence, practices, and psychological implications: A multi-institutional cross-sectional study. *Annals of King Edward Medical University*, *31*(Spl2), 168–173.

Moosa, A. S., Lim, S. F., Koh, Y. L. E., Aau, W. K., & Tan, N. C. (2023). The management of acne vulgaris in young people in primary care: A retrospective cohort study. *Frontiers in Medicine*, *10*, 1152391.

Morrison, I., Löken, L., & Olausson, H. (2010). The skin as a social organ. *Exp Brain Res*, *204*(3), 305–314.

Motosko, C. C., Zakhem, G. A., Pomeranz, M. K., & Hazen, A. (2019). Acne: a side-effect of masculinizing hormonal therapy in transgender patients. *Br J Dermatol*, *180*(1), 26–30.

Nast, A., Dreno, B., Bettoli, V., & ... (2012). European evidence-based (S3) guidelines for the treatment of acne. *J Eur Acad Dermatol Venereol*, *26*(suppl 1), 1–29.

Özçelik, S., Kulaç, İ., Yazıcı, M., & Öcal, E. (2018). Distribution of childhood skin diseases according to age and gender, a single institution's experience. *Turk Pediatri Ars*, *53*(2), 105–112.

Öztekin, C., & Öztekin, A. (2020). The association of depression, loneliness, and internet addiction levels in patients with acne vulgaris. *BioPsychoSocial Medicine*, *14*(1), 17.

Prakesh, U., & Abbas, M. (2025). The rising incidence of Acne Vulgaris in adolescents: Lifestyle factors and preventive strategies in Bangladesh. *Scientific Journal of Dermatology and Venereology*, *3*(1), 54–66.

Raznatovic Đurovic, M., Janković, J., Đurovic, M., Spirić, J., & Janković, S. (2021). Adolescents' beliefs and perceptions of acne vulgaris: A cross-sectional study in Montenegrin schoolchildren. *PLoS One*, *16*(6), e0253421.

Savo, I., Jorgaqi, E., Vasili, E., Mishtaku, S., Demaj, D., & Jafferany, M. (2020). Treatment-seeking behavior, knowledge and beliefs about acne vulgaris among adolescents: a cross-sectional study in high school students in Tirana, Albania. *Dermatologic Therapy*, *33*(4), e13500.

Seetan, K., Kiwan, B., Kasasbeh, D., Ayesh, M., Al-Zoubi, O., Al-Sarhan, B., & Al-Majali, H. (2023). *Impact of Lifestyle Factors on the development and severity of Acne Vulgaris: A cross-sectional study*.

Shabnam, S. (2018). *A Study on Prevalence of Acne Vulgaris and Its Impact on Quality of Life in Adolescents of Kendriya Vidyalaya's of Jalahalli Area of Bangalore* (Doctoral dissertation, Rajiv Gandhi University of Health Sciences (India)).

Shen, Y., Wang, T., Zhou, C., Wang, X., Ding, X., Tian, S., & ... (2012). Prevalence of acne vulgaris in Chinese adolescents and adults: A community-based study of 17,345 subjects in six cities. *Acta Dermato-Venereologica*, *92*(1), 40–44.

Smith, R. N., Mann, N. J., Braue, A., Mäkeläinen, H., & Varigos, G. A. (2007). The effect of a high-protein, low glycemic-load diet versus a conventional, high glycemic-load diet on biochemical parameters associated with acne vulgaris: A randomized, investigator-marked, controlled trial. *J Am Acad Dermatol*, *57*, 247–256.

Strauss, J. S., Krowchuk, D. P., Leyden, J. J., Lucky, A. W., Shalita, A. R., Siegfried, E. C., & ... (2007). Guidelines of care for acne vulgaris management. *J Am Acad Dermatol*, *56*, 651–663.

Syafira, C. D., Yuniati, L., Hamzah, P. N., & Amelia, D. (2025). Level of knowledge and behavior of adolescents regarding Acne Vulgaris among medical students University of Muslim Indonesia. *Jurnal Kesehatan*, 184-193.

Toy, J., Wan, V., Lee, D. G., Liu, C., Fleming, P., & Lynde, C. (2023). Perspectives and knowledge of acne vulgaris among young adolescents. *Pediatric Dermatology*, *40*(2), 308–311.

Tunçer Vural, A. (2022). The development of acne vulgaris due to face masks during the pandemic, risk awareness, and attitudes of a group of university students. *Journal of Cosmetic Dermatology*, *21*(11), 5306–5313.

Witkam, W. C., Dal Belo, S. E., Pourhamidi, S., Raynaud, E., Moreau, M., Aguilar, L., & Pardo, L. M. (2024). The epidemiology of acne vulgaris in a multiethnic adolescent population from Rotterdam, the Netherlands: A cross-sectional study. *Journal of the American Academy of Dermatology*, *90*(3), 552–560.

Wolkenstein, P., Machovcová, A., Szepietowski, J. C., Tennstedt, D., Veraldi, S., & Delarue, A. (2018). Acne prevalence and associations with lifestyle: A cross-sectional online survey of adolescents/young adults in 7 European countries. *Journal of the European Academy of Dermatology and Venereology*, *32*(2), 298–306.

Yan, H. M., Zhao, H. J., Guo, D. Y., Zhu, P. Q., Zhang, C. L., & Jiang, W. (2018). Gut microbiota alterations in moderate to severe acne vulgaris patients. *J Dermatol*, *45*(10), 1166–1171.

Zhu, Z., Zhong, X., Luo, Z., Liu, M., Zhang, H., Zheng, H., & Li, J. (2025). Global, regional, and national burdens of acne vulgaris in adolescents and young adults aged 10–24 years from 1990 to 2021: A trend analysis. *British Journal of Dermatology*, *192*(2), 228–237.

Note: **Open Access Public Health and Health Administration Review** is recognized by the Higher Education Commission of Pakistan in the Y category.

Disclaimer/ Publisher's Note: The statements, opinions, and data contained in all publications in this journal are solely those of the individual author(s) and not of the MDPIP and/ or the editor(s). MDPIP and editor(s) disclaim responsibility for any injury to the people or property resulting from any ideas, methods, instructions, or products referred to *in the content.*