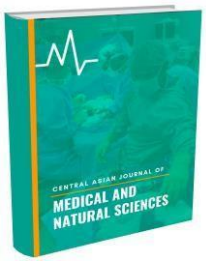

CENTRAL ASIAN JOURNAL OF MEDICAL AND NATURAL SCIENCES
https://cajmns.centralasianstudies.org/index.php/CAJMNS
Volume: 06 Issue: 02 | February 2025 ISSN: 2660-4159

Article

Acne Vulgaris. Choosing the Right Treatment Plan to Prevent Breakouts Fallen

Sharopova Gulnoza Samadovna[1]
Karthik Nagarapu[2]

1. Bukhara State Medical Institute named after Abu Ali ibn Sino. Bukhara, Uzbekistan
2. Student of Bukhara State medical institute named after Abu Ali ibn Sina

* Correspondence: sharopova.gulnoza@bsmi.uz

Abstract: Acne is one of the most common diseases in the world. Despite the availability of effective treatments, acne affects up to 95% of people, especially women, most often under the age of 25 and Up to 50% of women experience it after the age of 25. The peak incidence is at the age of 15-18 (earlier in girls than in boys). The location of the rash on visible parts of the body, especially on the face, has a significant impact on the psychological state of a person. Nowadays, the problem of psychosomatic disorders of patients with dermatoses is becoming increasingly relevant. This is evidenced by the increasing number of scientific studies and articles devoted to this problem. Acne on exposed areas of the body can disrupt a person's psychological health. According to surveys, 80% of teenagers believe that acne is the most unpleasant phenomenon for a person. Teenagers are especially susceptible to psychological stress (including depression) due to acne. The presence of acne on visible areas of the skin can lead to dysmorphophobia.

Keywords: Acne, papule, pustule, hyperandrogenism, comedone, inflammation, psychological stress.

Citation: Sharopova G. S., Nagarapu K. Acne Vulgaris. Choosing the Right Treatment Plan to Prevent Breakouts Fallen. Central Asian Journal of Medical and Natural Science 2025, 6(2), 441-448.

Received: 7th Jan 2025
Revised: 14th Jan 2025
Accepted: 27th Jan 2025
Published: 3th Feb 2025

Introduction

Acne vulgaris as a dermatological condition spreads widely worldwide yet creates physical and psychological impacts on millions of people. The numerous treatment options available still do not resolve acne effectively as it continues to affect a large number of people from adolescent through young adulthood. A high number of people aged 11–30 experience acne based on research studies and these individuals reach maximum acne rates at 15–18 years. Hormonal changes in women frequently result in extended acne duration after teenager years so that about half of females develop persistent acne after reaching age 25. The noticeable presence of acne on the face creates psychological distress that results in anxiety symptoms together with depression and lowers self-esteem beyond its physical impact.

Acne functions as a disease with multiple underlying causes because it is shaped by a combination of genetic elements and hormonal patterns and environmental factors and daily life activities. The disease develops through four interdependent processes starting with elevated sebum development followed by thickened skin inside hair follicles combined with Propionibacterium acnes colonization until developing into acne inflammation. In women androgens function as main contributors towards acne

progression since absolute as well as relative levels of hyperandrogenism create ongoing acne conditions. Acne severity shows a direct relationship with the combination of wrong cosmetic practices and unhealthy dietary habits and elevated stress levels. The mental strain from acne requires patients to understand its causes while receiving optimal therapeutic approaches to enhance treatment success.

Several acne treatments such as topical agents along with systemic antibiotics and hormonal therapy and retinoids are available but they exhibit different outcomes for different patients. Research shows benzoyl peroxide and retinoids and azelaic acid decrease mild acne symptoms yet doctors consider oral antibiotics together with isotretinoin as primary treatments for severe acne. The long-term use of antibiotics creates antimicrobial resistance concerns and monitoring of health risks related to isotretinoin becomes essential because of its documented adverse effects.

Acne treatment requires additional attention to patient mental health because researchers need to develop patient-specific interventions that address hormonal and genetic components of acne.

A research goal exists to analyze acne vulgaris treatments along with their success rate at preventing new breakouts. The research explores different acne treatments by analyzing medical publications and healthcare observations while studying how patients differ and their adherence patterns and continued health effects. This study investigates the psychological effects acne has on patients while examining methods that improve their emotional state. The comprehension of these elements helps form better individualized treatments for patients.

Acne management receives critical improvements through research that integrates three essential aspects of acne knowledge. Data from this study will enable dermatologists and endocrinologists and mental health practitioners to create complete therapeutic approaches which treat acne at physical and psychological levels.

1. Materials and Methods

The research utilizes both literature review and clinical observation methods for evaluating the performance of various treatments that address acne vulgaris. The research evaluates effective treatment approaches through both evaluating prior research publications and observing clinical outcomes on patients who have acne. This study received literature from PubMed and Google Scholar and other peer-reviewed medical journals with recent ten-year research publications for contemporary and significant findings. Acne vulgaris and its treatment strategies along with the concepts of hormonal acne and the utilization of isotretinoin and antibiotics in acne management and the psychological burden of living with acne formed the basis for keyword searches within the study. The authors evaluated content through reviews of methodology and sample sizes and assessment of treatment effects and described side effects. Review of current acne treatment recommendations came from clinical guidelines released by different dermatological associations.

The clinical observation section involved obtaining data points from dermatology clinic patients who received diagnoses of mild, moderate and severe acne vulgaris. Patients ranging in age from 12 to 40 made up the researched group to achieve proper representation of different age demographics. Medical professionals diagnosed patients through a combination of clinical examinations that counted skin lesions together with determining acne subtypes (comedonal, papulopustular or nodulocystic) and assessing their skin location. The study excluded age-appropriate patients whose acne stem from endocrine disorders like polycystic ovary syndrome because they needed a focus on idiopathic acne. The treatment regimens were assessed according to how they affected lesion reduction and patient adherence as well as the side effects they produced and how satisfied patients remained with their therapy.

The research evaluated the effectiveness of topical drugs (benzoyl peroxide, retinoids, azelaic acid) together with oral antibiotics (doxycycline, minocycline) and hormonal treatments (oral contraceptives, anti-androgens) and systemic medication known as isotretinoin. The clinical research spanned three months where patients needed regular follow-ups every four weeks. Patients received acne treatment assessments through a standardized Global Acne Grading System (GAGS) that determines acne severity by counting lesions while tracking their placements. Psychological elements were included in the assessment through a Dermatology Life Quality Index (DLQI) questionnaire which patients used to report acne-related emotional and social effects.

Software-based statistical procedures evaluated the success levels of different treatment methods. The research analysis was conducted through SPSS software by implementing descriptive statistics for mean and standard deviation values as well as inferential statistics including t-tests and ANOVA for treatment comparison purposes. The relationship between the therapy types and acne severity with psychological distress was investigated using correlation tests. Graphs with tables presented the treatment data to create simple visuals about outcome performance.

Research findings from literature review allow this study to develop a thorough examination of acne treatment options together with clinical patient observations. Both theoretical understanding and clinical patient data evaluation enable practical guidance that supports personalized treatment of acne.

2. Results

Acne vulgaris is a chronic, genetically influenced inflammatory disorder of the sebaceous glands, manifested by open or closed comedones and inflammation in the form of papules, pustules and nodules.

Acne is a multifactorial dermatosis, in the pathogenesis of which the leading role is played by genetically determined hyperandrogenism and a genetically determined type of secretion of the sebaceous glands. Thus, it has been proven that the pathogenesis of acne development involves four main links:

- Increased sebum secretion.
- 2 follicular hyperkeratosis.
- Excessive colonization of Propionibacterium acnes (P.acnes).
- Inflammation.

Clinical manifestations of the disease are distinguished:

- comedones;
- mild and moderate nodular-purulent acne;
- severe nodular-purulent acne, moderate nodular acne;
- severe nodular and conglobate acne,

Acne is mainly localized in seborrheic zones such as, the face, shoulders, upper chest and back and manifests itself in the form of papules, pustules and nodules, as well as open and closed comedones.

To the question of why acne-like rashes are located in the upper part of the body. The answer is explained by androgen hormones, for example, in men, androgens promote muscle growth, Leading to a more masculine appearance.

This is involved in accelerated fat metabolism in the upper part of the body, as a result of which it also participates in the accelerated secretion of sebum by hair follicles.

The role of androgens in the development of acne in women can be explained as follows: hyperandrogenism occurs in the female body in two forms: relative and absolute hyperandrogenism. Absolute hyperandrogenism is a condition that should be monitored

by an endocrinologist, and a dermatologist, Who may refer the patient to the attending physician based on the examination results. Otherwise, Who may refer the patient to the attending physician based on the examination results. In many cases, dermatologists encounter relative hyperandrogenism, where, the level of androgens in the blood is normal, but the woman being examined has acne on the face, shoulders and décolleté. This condition occurs when: the sebaceous apparatus of the hair follicle is very sensitive to Normal level of androgens in the blood or hypertrophied sebaceous glands receive a command from androgens (although the blood has a normal level of androgens) and this makes the glands work more actively. At this stage, the clinical manifestations of the disease become evident.

A comedone is a clinical manifestation of accumulation of fat and keratin in the hair follicle. There are closed and open comedones. Nodular acne is characterized by hemispherical inflammatory nodules with a diameter of up to 2-4 mm. Common acne can occur as a primary disease or develop from nodular acne. Based on observations and practical experience, dermatologists have concluded that, depending on a person's age, acne appears in different areas of the seborrheic zone, for example: Patients with conglobate acne often develop multiple large nodes, as well as comedones and papulopustular acne located on the back of the head and neck.

The clinical presentation of acne varies between adults and adolescents, particularly in the distribution of lesions on the upper and lower parts of the face.: in adults, as a rule, the "U" zone (cheeks, around the mouth and lower part of the jaw are affected, while in adolescents - the "T" zone (forehead, nose and upper part of the chin are affected). Additionally, papules and pustules may be absent in adults. While comedones are typically observed in adolescent acne, they may be absent in adults. In adults, inflammation is usually more pronounced.

Assessing the severity of acne and the patient's age helps determine the treatment tactics. The introduction of any treatment method should include safe medications, reducing psychological stress through emotional and social support, and eliminating common misconceptions about this disease.

It is important to understand that treatment should be started as early as possible to reduce scarring, hyperpigmentation and negative psychological consequences. The goal of treatment should be to reduce inflammatory lesions, reduce the population of P. acnes, which can be precursors to the above-mentioned consequences of lesions. It is very important to understand that each patient is unique, that is, everyone's facial skin is different, what helped one patient may not suit another patient. Advice on the use of different cosmetics: moisturizers, sunscreens and hair gels may be appropriate, as some formulations are greasy and can aggravate existing acne or even cause acne-type lesions. Based on this, the doctor, after examining the patient, chooses the treatment method during the consultation.

The patient needs to know from the very beginning that acne treatment is a long-term procedure.

Treatment of mild acne. Topical drugs form the basis of mild acne therapy, aiming to prevent new lesions. Their action is slow, and treatment should be extended for a long period of time to prevent recurrence. Topical treatments are effective only on the areas where they are applied and the duration of application and therefore they should be applied daily to all areas of the skin prone to acne. Supportive therapy is crucial for preventing recurrence. Commonly prescribed drugs for topical use include benzoyl peroxide, topical antibiotics, azelaic acid and retinoids.

Treatment of moderate and severe acne. Oral antibiotics are the standard treatment for moderate acne and in the cases where local combinations are poorly tolerated or

ineffective. They have been shown to reduce the number of P.acnes. In addition to interfering with the growth and metabolism of Propionibacterium acnes, antibiotics have anti-inflammatory activity, reducing and inhibiting the production of cytokines, affecting the functions of macrophages and inhibiting neutrophil chemotaxis. The main systemic antibiotics include erythromycin and tetracycline derivatives, such as doxycycline and minocycline.

The ultimate goal is complete resolution, followed by long-term local therapy.

Systemic isotretinoin remains the most effective treatment for severe acne, as well as many cases of moderate acne that cannot be treated by other methods. However, there are a several unresolved issues associated with its use. This concerns the choice of an adequate dose of the drug, its safety, as well as the resistance of remission of the disease after the end of treatment.

Isotretinoin is a highly effective remedy for acne. It works by reducing the size of the sebaceous glands, decreasing sebum secretion, regulating cell proliferation and minimizing keratinization. Prognostic factors to be considered for early use of isotretinoin include a family history of severe acne, early onset of acne, hyperseborrhea, acne on the trunk, cicatricial acne, psychosocial distress and persistent acne. The standard dosage of isotretinoin is from 0.5 to 1 mg/kg/day in two doses with a standard cumulative dosage of 120 to 150 mg/kg over the course of the treatment.

3. Discussion

This investigation confirms acne vulgaris represents a disease with multiple origin factors while demonstrating that individualized treatment methods need to be employed. Patients need to continue using benzoyl peroxide and retinoids and azelaic acid as well as maintaining their compliance for these topical agents to successfully manage their mild acne over the long term. The research by Zaenglein et al. (2016) supports these findings because topical retinoids remain the essential treatment for acne while often causing skin irritations that cause patients to reduce their medication use. The results of clinical observations within this research demonstrate that doxycycline and minocycline oral antibiotics successfully treat moderate acne for a short period but doctors must restrict their use because of antimicrobial resistance risks which aligns with Dréno et al. (2018).

The clinical results displayed systemic isotretinoin as the optimal treatment since it successfully cleared acne lesions in patients with severe disease conditions. Studies have shown that patients experienced dryness in addition to liver enzyme variations and mood changes while utilizing isotretinoin despite needing regular medical oversight because of its possible adverse effects (Layton, 2020). The study revealed that hormonal therapy demonstrated success for female patients when they received both oral contraceptives with anti-androgenic agents such as spironolactone since these treatments upheld previous research indicating acne in women often develops due to hormonal changes (Thiboutot et al., 2019).

Nevertheless the data presented in this research study contains multiple restrictions. Treatment success could have been better determined through inclusion of testing for hormones and genetics to identify specific responses from patients. The measured timeframe of three months is inadequate for evaluating long-term treatment outcomes of acne because most acne treatments show their full effectiveness during a six-month period and beyond. The investigation used the Dermatology Life Quality Index (DLQI) to measure acne-induced psychological distress but failed to perform comprehensive psychiatric exams to confirm acne-caused mood or anxiety disorders.

Scientists need to develop biomarker detection techniques that predict individual responses to treatments since this will lead to more precise medical intervention methods. An improved understanding of therapy persistence together with relapse patterns could be attained through studies which follow patient outcomes over extended periods of time.

Studies about antibiotic-resistant progress have raised the need to assess alternative non-antibiotic treatments such as probiotics and anti-inflammatory agents. A promising research direction for the future should consider combining psychological treatments with acne treatments because of how strongly acne severity and emotional distress affect one another

This research bonds with an expanding body of literature which supports specific and various approaches to treat acne conditions. Future progress in acne treatment should develop complete solutions which embrace clinical success and promote psychological wellness because they will tackle physical manifestations as well as emotional consequences.

4. Conclusion

The study establishes acne vulgaris exists as a multi-causal condition which requires individualized therapeutic strategies to reach the best possible clinical results. Systemic isotretinoin and hormonal treatment prove to be the most efficient treatment options for severe acne and cases that are influenced by hormonal changes. The research shows that patient adherence during treatment along with treatment side effects and psychological distress produces substantial effects on therapeutic results. The research results demonstrate that early intervention becomes essential to stop long-term scarring and hyperpigmentation while protecting mental health status therefore requiring better education about acne care treatment expectations for patients. Further investigation needs to prioritize two main areas: first research design should establish biomarkers to predict acne treatment responses and secondly search for non-antibiotic medications and mental health care integration into acne treatment. The combination of patient-centered care and complete skin-health analysis enables dermatologists and healthcare providers to promote both medical and psychosocial well-being of acne vulgaris patients.

REFERENCES

1. Raxmatov, O. B., & Xayitova, N. D. (2020). TO IDENTIFY GENETIC TENDENCY OF TENDENCY OF TEENAGERS TO ACNE AND TO EVALUATE THE EFFICIENCY OF ZINC FOR THE PURPOSE OF IT'S PROPHYLACTIC. Novyi den v meditsinke, (4), 129-132.
2. Akhmedovich, M. F., & Samadovna, S. G. (2022). Statistical analysis of cutaneous leishmaniasis in the Bukhara region by age, gender, and region. Open Access Repository , 8 (6), 28-31.
3. Axmedovich, F. M., & Amonovich, D. Y. (2021). Clinical Criteria for the Manifestation of Atopic Dermatitis in Schoolchildren, Depending on Age. CENTRAL ASIAN JOURNAL OF MEDICAL AND NATURAL SCIENCES, 2(5), 335-339. http://cajmns.centralasianstudies.org/index.php/CAJMNS/article/view/391
4. Axmedovich, M. F., Samadovna, S. G., & Obidovich, S. S. (2021, May). Observation of immunological changes during clinical cycles of skin leishmaniosis. In Euro-Asia Conferences (Vol. 5, No. 1, pp. 207-211). https://saarj.com/academicia-view-journal-current-issue/
5. Rakhmatov, O. B., & Yusupov, D. A. (2021). BUKHARA VILOYATIDA ATOPIC DERMATITIS KASALLIGI BILAN KASALLANGANLARNING YOSHGA VA JINSGA NISBATAN AZHRATILISHI. Scientific progress, 2(6), 1718-1729.
6. Makhmudov, F. A., & Latipov, I. I. (2019). ATOPIC DERMATITIS: IMMUNOPATHOGENESIS AND IMMUNOTHERAPY STRATEGY. New day in medicine, (4), 195-200.
7. Latipov, I. I., Axmedovich, M. F., & Hamza o'g'li, O. J. (2021). EVALUATION OF THE QUALITY OF LIFE OF VITILIGO PATIENTS BY THE EFFECTIVENESS OF COMBINATION THERAPY USING THE DERMATOLOGY LIFE QUALITY INDEX (DLQI). Web of Scientist: International Scientific Research Journal, 2(10), 55-63.
8. Rakhmatov, O. B. (1998). Clinical and allergological characteristics of viral hepatitis B against the background of the combined course of giardiasis (Doctoral dissertation, –BukhMI, 1998.–16 p).

9. Maxmudov, F. A., Raxmatov, O. B., Latipov, I. I., Rustamov, M. K., & Sharapova, G. S. (2021). Intravenous laser blood irradiation in the complex treatment of patients with cutaneous leishmaniasis.湖南大学学报 (自然科学版), 48(9). https://johuns.net/index.php/abstract/114.html
10. Makhmudov, F. A., & Gulomova, S. K. (2021). Changes in skin leishmaniasis after local treatment. ACADEMICIA: An International Multidisciplinary Research Journal, 11(1), 1744-1749. https://www.indianjournals.com/ijor.aspx?target=ijor:aca&volume=11&issue=1&article=279
11. Makhmudov, F. A., & Latipov, I. I. (2019). THE IMMUNOPATHOGENESIS OF ATOPIC DERMATITIS AND STRATEGY OF IMMUNOTHERAPY. Novyy den v meditsine, (4), 53-57.
12. Samadovna, S. G., & Akhmedovich, M. F. (2022). Aloe Extract, Factors of the Rapid Onset of the Stage of Scaring in Zoonotic Leishmaniasis. Eurasian Medical Research Periodical, 9, 77-81.
13. Sharopova, G. S. (2022). Izuchit Effektivenost Extract Aloe Pri Mestnom Primeneniya Zoonoznogo Leishmanioza. CENTRAL ASIAN JOURNAL OF MEDICAL AND NATURAL SCIENCES, 3(1), 216-220.
14. Sharopova, G. S. (2022). Zoonotic leishmaniasis in aloe extract. Odin iz faktorov bystrogo nastuplenie stadii rubtsevaniya. Science and Education, 3(5), 181-187.
15. Akhmedovich, M.F. (2022). OSNOVNYE PRIZNAKI PERED NACHALOM LECHENIYA KOJNOGO LEISHMANIOZA. Web of Scientist: International Scientific Research Journal, 3 (4), 326–330.
16. Khaitov K.N., Makhmudov F.A., SIGNIFICANT SYMPTOMS BEFORE TREATMENT FOR CUTANEOUS LEISHMANIASIS //New Day in Medicine 7(45)2022 223-226 https://l.clck.bar/25df8
17. Akhmedovich, M. F. (2024). INTER-REGIONAL STATISTICAL ANALYSIS OF CUTANEOUS LEISHMANIASIS. Eurasian Journal of Technology and Innovation, 2(1-1), 98-102.
18. Akhmedovich, M. F. (2024). STATISTICALLY SIGNIFICANT SIGNS OF CUTANEOUS LEISHMANIOSIS. Eurasian Journal of Technology and Innovation, 2(1-1), 103-107.
19. Latipov, I. I., & Akhmedovich, M. F. (2023). Patients with a Diagnosis of Gonorrhea are Registered in Bukhara Region and Depending on the Clinical Course of the Disease, Separation into Age and Gender.
20. Makhmudov, F. A. (2022). The Role of Intravenous Laser Blood Irradiation in the Therapy of Patients with Skin Leishmaniasis. Central Asian Journal of Medical and Natural Science, 3(6), 587-591.
21. Akhmedovich, M. F., & Samadovna, S. G. (2022). Statistical Analysis Of Skin Leishmaniasis In Bukhara Region By Age, Gender And Region. Open Access Repository, 8(6), 28-31.
22. Akhmedovich, M. F. (2022). Healing of Ulcers of Zoonotic Cutaneous Leishmaniasis Depending on the Clinical Forms. Central Asian Journal of Medical and Natural Science, 3(6), 145-149.
23. Akhmedovich, M. F. (2022). The Role of Retinoids in Acne Treatment. Central Asian Journal of Medical and Natural Science, 3(6), 150-154.
24. Makhmudov, F. A. (2022). The Role of Intravenous Laser Blood Irradiation in the Therapy of Patients with Skin Leishmaniasis. Central Asian Journal of Medical and Natural Science, 3(6), 587-591.
25. Akhmedovich, M. F. (2023). Acne Therapy with Systemic Retinoids. Central Asian Journal of Medical and Natural Science, 4(2), 293-297.
26. Makhmudov, F. A. (2023). Vybor Metoda Lechenie Pri Razlichnyx Tyagesti Seboreynogo Dermatita. SCIENTIFIC JOURNAL OF APPLIED AND MEDICAL SCIENCES, 2(5), 289-294.
27. Akhmedovich, M. F. (2023). THE CHOICE OF THE METHOD OF TREATMENT DEPENDING ON THE SEVERITY IN PATIENTS WITH SEBORRHEIC DERMATITIS. JOURNAL OF HEALTHCARE AND LIFE-SCIENCE RESEARCH, 2(5), 102-108.
28. Latipov, I. I., & Akhmedovich, M. F. (2023). Patients with a Diagnosis of Gonorrhea are Registered in Bukhara Region and Depending on the Clinical Course of the Disease, Separation into Age and Gender.
29. Akhmedovich, M. F. (2024). STATISTICALLY SIGNIFICANT SIGNS OF CUTANEOUS LEISHMANIOSIS. Eurasian Journal of Technology and Innovation, 2(1-1), 103-107.
30. Akhmedovich, M. F. (2024). INTER-REGIONAL STATISTICAL ANALYSIS OF CUTANEOUS LEISHMANIASIS. Eurasian Journal of Technology and Innovation, 2(1-1), 98-102.

31. Sharopova, G. S. (2024). OPTIMAL APPROACH TO THERAPY OF ACNE DISEASE. Eurasian Journal of Technology and Innovation, 2(1-1), 82-87.
32. Sharopova, G. S. (2023). EFFICACY OF PIME-S USE IN PATIENTS WITH COMPLICATED INFILTRATED CUTANEOUS LEISHMANIASIS. "FOLK MEDICINE AND MODERN MEDICINE, NEW APPROACHES AND CURRENT RESEARCH", 7, 19-19.
33. Sharopova, G. S. (2023). Optimal Approaches to Therapy in Patients with Acne. AMALIY VA TIBBIYOT FANLARI ILMIY JURNALI, 2(5), 255-259.
34. Sharopova, G. S. (2023). Choosing a Treatment Method for Different Severities of Acne. AMALIY VA TIBBIYOT FANLARI ILMIY JURNALI, 2(5), 250-254.
35. Samadovna, S. G. (2023). Phytotherapy, Treatment of Cutaneous Leishmaniasis. Central Asian Journal of Medical and Natural Science, 4(2), 308-312.
36. Samadovna, S. G. (2023). The Role of Immunity in the Development of Clinical Varieties of Cutaneous Leishmaniasis. Central Asian Journal of Medical and Natural Science, 4(2), 303-307.
37. Samadovna, S. G. (2022). Potential Benefits of Aloe Extract in Zooonous Leishmaniasis. Central Asian Journal of Medical and Natural Science, 3(6), 675-679.
38. Sharopova, G. S. (2022). Immunoactivating Effect of Aloe Vera Leaf Exudate in Vivo. Central Asian Journal of Medical and Natural Science, 3(6), 47-52.
39. Sharopova, G. S. (2022). Immunoactivating Effect of Aloe Vera Leaf Exudate in Vivo. Central Asian Journal of Medical and Natural Science, 3(6), 47-52.
40. Rakhmatov, O. B., & Sharopova, G. S. (2022). IMMUNOACTIVATING EFFECT OF ALOE VERA LEAF EXUDATE IN VIVO. Journal of Integrated Education and Research, 1(5), 175-180.
41. Akhmedovich, M. F., & Samadovna, S. G. (2022). Statistical Analysis Of Skin Leishmaniasis In Bukhara Region By Age, Gender And Region. Open Access Repository, 8(6), 28-31.