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Patient Satisfaction in Laser-Based Acne Scar Treatments: A Prospective Study

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Introduction

Acne vulgaris is one of the most prevalent dermatologic conditions globally, affecting a large portion of the adolescent and adult population. While active acne can be managed effectively with a range of topical, systemic and procedural treatments, the sequelae in the form of acne scarring present a persistent challenge in aesthetic and psychological domains. Atrophic acne scars classified into icepick, boxcar and rolling types are often disfiguring and resistant to most topical therapies. Among the modern advancements in dermatologic practice, laser-based treatments have gained significant ground for their efficacy in remodeling scar tissue, stimulating collagen production and improving overall skin texture and appearance. However, clinical efficacy is not the only determinant of success in aesthetic dermatology. Patient satisfaction shaped by visual improvement, recovery time and discomfort during and after procedures and alignment of expectations is increasingly considered a key outcome in evaluating therapeutic success. This prospective study aims to explore patient satisfaction following laser-based acne scar treatments and to assess factors influencing perceived outcomes [1].

The study enrolled a cohort of patients aged 18 to 45 years with moderate to severe atrophic facial acne scarring. Exclusion criteria included active acne lesions, history of keloidal tendencies, use of isotretinoin in the past six months and any underlying systemic or dermatologic conditions that could affect wound healing. Patients underwent laser treatment using either fractional CO_2 laser, erbium\:YAG laser, or non-ablative fractional laser systems. Choice of modality was individualized based on scar type, skin type, patient preference and clinician assessment. Each participant underwent a series of three to five sessions spaced four to six weeks apart and follow-up evaluations were conducted at baseline, after each session and at 3- and 6-month intervals post-treatment.

Description

The treatment sessions were carried out in a standardized fashion by board-certified dermatologists, ensuring consistent energy settings, treatment density and post-procedure care protocols. Patients were educated about realistic expectations, potential side effects and post-laser care requirements, including sun protection, moisturization and avoidance of irritants. An anesthetic cream was applied 30-45 minutes before each session to reduce procedural discomfort. Post-laser erythema and edema were managed with topical corticosteroids and cold compresses. Objective assessment of scar improvement was done by dermatologists using a validated acne scar grading scale, while patient satisfaction was measured through self-reported surveys and Visual Analog Scales (VAS), considering factors such as improvement in appearance, downtime, pain, texture and overall satisfaction [2].

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The results of the study revealed a significant correlation between clinical improvement and patient satisfaction, but the relationship was not entirely linear. While over 80% of patients demonstrated clinical improvement of at least one grade on the acne scar grading scale, only 67% reported being highly satisfied with their outcomes. Another 25% expressed moderate satisfaction, while a small subset (8%) reported minimal satisfaction or dissatisfaction. Interestingly, patient satisfaction was highest among those treated with fractional CO_2 laser, particularly in those with rolling and boxcar scars, where collagen remodeling resulted in smoother skin texture. Non-ablative fractional lasers, while associated with shorter downtime and less discomfort, yielded more modest clinical results and hence moderate satisfaction scores, especially in patients expecting dramatic changes. Downtime and side effects were significant determinants of satisfaction. Ablative lasers like CO_2 and erbium\:YAG offered more pronounced results but came with longer recovery periods, ranging from 5 to 10 days of erythema, crusting and occasional post-inflammatory hyperpigmentation, particularly in darker skin types. While most patients were willing to accept temporary discomfort for improved long-term results, a few expressed frustration over the need to take time off from work or social activities. The non-ablative laser group, in contrast, showed quicker recovery, with most resuming daily routines within 48 to 72 hours. This benefit was reflected in higher satisfaction scores among working professionals and patients with lower thresholds for downtime.

Conclusion

Laser-based treatments offer significant potential for improving acne scarring and patient satisfaction is influenced by a complex interplay of clinical efficacy, downtime, procedural discomfort and alignment of expectations. Fractional ablative lasers provide the most noticeable improvement but come with longer recovery, while non-ablative lasers offer more convenience with milder results. Effective patient counseling, appropriate treatment selection based on scar type and skin type and comprehensive aftercare are essential to optimize outcomes and satisfaction. As aesthetic dermatology continues to evolve, integrating patient-centered approaches and satisfaction metrics into clinical practice will be key to delivering holistic and meaningful results in the treatment of acne scars.

Acknowledgement

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Conflict of Interest

None.

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