

Comparison of Self-Esteem in Patients Before and after Chemical Skin Peeling: An Interventional Study

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ABSTRACT

Objective: To evaluate the self-esteem of patients undergoing chemical peeling for therapeutic reasons.

Study Design: Pre-post Observational study.

Place and Duration of Study: Department of Dermatology Combined Military Hospital, Multan Pakistan, from Mar to Aug 2021.

Methodology: Forty-four patients were included in the study. After detailed history and clinical examination, self-esteem of all selected patients meeting the inclusion criteria was determined using RSES (Rosenberg Self-Esteem Score) score. Four sessions of chemical peeling were done using 30% salicylic acid with interval of 2 weeks between each session. (At week 0, 2, 4 and 6) All patients were advised the use of similar sun blocks during the treatment period. Post-peel RSES was re-assessed at 6 weeks.

Results: The pre-peel RSES score (17.95 ± 2.29) improved significantly after the sessions of chemical peeling. The post-peel RSES score was (19.47 ± 1.95). p -value < 0.001

Conclusion: Our study showed chemical peeling with 30% salicylic acid caused a significant enhancement of patients' self-esteem, as significant difference in Rosenberg Self-Esteem Scores was seen before and after chemoexfoliation.

Keywords: Chemical peeling, Chemexfoliation, RSES (Rosenberg Self-Esteem Score), Self-esteem, Salicylic acid, Skin Peeling Agents.

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INTRODUCTION

Self-esteem is a subjective index depending on many factors based on which individuals determine their self-worth and place in the society.¹ Rosenberg Self-Esteem Scale is used to measure self-esteem of individuals.²

About 85% of patients with skin diseases are psychologically and socially deprived as reported by the British Association of Dermatologists.³ Moreover, diseases appearing on face such as acne significantly reduce self-esteem and social acceptance of individuals as compared to the non-apparent skin diseases.⁴ Various skin diseases such as acne, melasma and rosacea are found to have a negative impact on self-esteem leading to various psychological diseases such as depression, anxiety and social disconnection.^{5,6}

Chemexfoliation or chemical peeling is the process by which medical and aesthetic improvement is brought about by controlled wounding of epidermis and dermis.^{7,8} According to their depth of penetration,

chemexfoliation agents are classified into superficial, medium, and deep peeling agents.⁹ Alpha-hydroxy acids are water-soluble. These include glycolic acid, citric acid and mandelic acid. They require neutralization with water or a base after their application. Beta-hydroxy acids, such as salicylic acid, are lipid soluble. Salicylic acid (SA) belongs to phenolic group of compounds with toxic action. It not only acts as a depigmenting agent but also has anti-inflammatory and antimicrobial properties. It is safely used in all skin prototypes.⁸ The main indications for treatment with chemical peels include the following: melasma, ephelides, post-inflammatory hyperpigmentation, photoaging, under-eye circles, acne vulgaris, rosacea, and scars.¹⁰ Self-esteem greatly affects a person's quality of life. Of various factors that determine self-esteem of human beings, physical appearance also plays an important role. The rationale of this study is to evaluate the self-esteem of patients undergoing chemical peeling for therapeutic reasons.

METHODOLOGY

After approval from the Institutional Ethical Review Committee, (ERC No. 55/2023), the Pre-post observational study was carried out at the Outpatient Setting of the Department of Dermatology Combined

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Military Hospital, Multan, Pakistan from March 2021 to August 2021.

Inclusion Criteria: Patients of either gender, aged 18 to 60 years having melasma, post-inflammatory hyperpigmentation, acne, acne- scars with duration of disease > 2 months and < 1 year and having Fitzpatrick skin type III, IV, V were included.

Exclusion Criteria: Patients having Fitzpatrick skin types I, II, VI, history of psychiatric illness or psychotropic drug use were excluded. In addition, patients with history of recurrent herpes simplex infection, active infection, history of cross-sensitivity to acetylsalicylic acid, allergy to topical agents, history of formation of keloids or hypertrophic scars or photosensitivity were excluded.

Sample size was calculated using STATA 15 with self-esteem score before peeling = 21.58±3.20 and self-esteem score after peeling = 23.48±2.43, which came to 44.¹¹ Non-probability consecutive sampling technique was used to collect data.

The purpose and benefits of the study were explained to the patients in a language they understood and were assured that the study was done purely for data publication and research purpose with confidentiality of the participants ensured. An informed written consent was obtained from each participant. After detailed history and clinical examination, self-esteem of all selected patients meeting the inclusion criteria was determined using RSES score. The scale consists of 10 questions and four answer choices. Each choice is given a point score. (Rosenberg, 1965). Low self-esteem score falls within the range 0 to 14, average self-esteem score within 15 to 25 and high self-esteem score between 26 to 30.¹²

Occupation was classified according to three class version of National statistics socioeconomic classification (NS-SEC). Class-I refers to higher managerial, administrative or professional occupations. Class II includes intermediate occupations while class III encompasses routine and manual occupations.¹³

Priming with 4% hydroquinone was done for 2 weeks before the peeling procedure. Four sessions of chemical peeling were performed using 30% salicylic acid with interval of 2 weeks between each session. (at week 0, 2, 4 and 6) All patients were advised similar sunblock during treatment period of 6 weeks. Post-peel RSES was re-assessed at 6 weeks. Data including name, age, gender, level of education, monthly

household income, socioeconomic status, occupation, indication of chemical peeling, RSES score and level of self-esteem were recorded on a pre-designed proforma. Characteristics of participants and distribution of characteristics were described by using the descriptive statistics.

Statistical analysis was performed using Statistics Package for Social Sciences (SPSS) version 25. Paired t-test was applied to find the difference in self-esteem before and after the procedure with the *p*-value of ≤ 0.05 being considered statistically significant

RESULTS

Forty-four patients were included in the study. The pre-peel RSES score improved significantly after the chemical peeling sessions, *p*-value<0.001 (Table-I). Indications for Chemical Peeling and Occupation of Patients were shown in Table-II. Association of gender on pre- and post-peel self-esteem score is shown in the Table-III.

Table-I: Pre-Peel and Post-Peel Self-Esteem Scores of Patients (n=44)

Pre-peel self-esteem score	Post-peel self-esteem score	<i>p</i> -value
17.95±2.29	19.47±1.95	<0.001

Table-II: Indications for Chemical Peeling and Occupation of Patients (n=44)

Indications of chemical peeling	n (%)
Melasma	31(70.5%)
Acne+PIH	4(9.1%)
Acne	3(6.8%)
PIH	3(6.8%)
Acne + melasma	2(4.5%)
Acne + acne scars	1(2.3%)
Occupation*	
Higher managerial, administrative or professional occupations	6(13.6%)
Intermediate occupations	2(4.5%)
Routine and manual occupations	(81.8%)

*According to National Statistics Socioeconomic Classification (NS-SEC)

Table-III: Association of Gender on Pre- and Post-Peel Self-Esteem Score (n=44)

	Males (n=10)	Females (n=34)	<i>p</i> -value
Pre-peel self-esteem score	20.10±1.52	17.32 ±2.09	<0.001
Post-peel self-esteem score	20.6±1.17	19.1± 2.03	0.038

Further findings showed that both pre and post peel scores of males were significantly higher than females (Table-IV) signifying higher self-esteem of males in our society. There was no statistically significant difference between post-peel self-esteem scores of different occupations (p -value >0.05). The post-peel self-esteem scores of higher secondary and above were significantly higher than primary educated individuals (p -value < 0.05).

DISCUSSION

Promising results are seen regarding improvement in the tone and texture of skin when chemoexfoliation, or chemical peeling, is performed considering all the pros and cons with the proper method and almost all peeling agents are cost-effective compared to invasive procedures.^{13,14} Sobanko *et al.* found that significant reduction in body image dissatisfaction was observed by using minimally invasive aesthetic injectable procedures.¹⁵ As compared to males, females are more prone to feelings of futility, lower self-esteem and greater body dissatisfaction and self-consciousness.¹⁶ Our study also showed greater self-esteem in males as compared to females. Further studies are required to confirm these findings. An observational prospective study was conducted on Lebanese young adults to assess the effect of acne treatment with topicals, oral antibiotics and isotretinoin on self-esteem and quality of life and significant improvement was seen with treatment both on the disease severity and self-esteem.¹⁷ We did not use these treatment options in our study but chemical peeling with Salicylic Acid did improve self-esteem of patients with acne. Multiple studies have been conducted to assess the impact of melasma and other pigmentary disorders on quality of life. Patients suffering from pigmentary disorders such as melasma, vitiligo and acquired dermal macular hyperpigmentation were found to have psychological diseases as well. These included anxiety, depression and somatoform disorders.¹⁸ A study was conducted by Kouris *et al.* to assess the self-esteem of patients before and after chemical peeling. 126 subjects were included in the study. 67 patients were treated for therapeutic indications, 59 individuals for aesthetic purposes and control group included 71 healthy, age- and sex-matched volunteers from the general population. Rosenberg's Self-esteem Scale (RSES) was used to assess the self-esteem before and after chemical peeling. In patients undergoing therapeutic peeling, the self-esteem score before peeling was

21.58 \pm 3.20 and after peeling was 23.48 \pm 2.43.¹¹ Our study also showed significant enhancement of self-esteem before and after chemical peeling.

In a developing country like Pakistan, where poverty, lack of education, poor health facilities and disease burden prevails, very little significance is given to a person's self-esteem and self-confidence. Societies are run by humans. For a successful and developed society, humans need to give the best of what they are responsible. Our study showed that all the patients of acne, melasma and post-inflammatory hyperpigmentation who had undergone chemical peeling with 30% salicylic acid had significant improvement in their self-esteem. Not much literature is published evaluating self-esteem of patients who undergo chemical peeling. Therefore, more research is required in this field. Furthermore, dermatologists need to acknowledge the fact that use of chemical peeling could help the patients to enhance their self-esteem.

LIMITATION OF STUDY

Different chemical peels could have been used in the study but salicylic acid was used because of its cost-effectiveness.

CONCLUSION

Our study showed chemical peeling with 30% salicylic acid caused a significant enhancement of patients' self-esteem, as significant difference in Rosenberg Self-Esteem Scores was seen before and after chemoexfoliation.

Conflict of Interest: None

Authors' Contribution

Following authors have made substantial contributions to the manuscript as under:

MR & SZ: Data acquisition, data analysis, drafting the manuscript, critical review, approval of the final version to be published.

AB & AZ: Study design, data interpretation, drafting the manuscript, critical review, approval of the final version to be published.

Authors agree to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

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