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Original Research Article

A survey assessing the role of a fixed-dose combination of 0.3% adapalene with 2.5% benzoyl peroxide in acne vulgaris

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ABSTRACT

Background: Acne is a common skin condition affecting adolescents and young adults, characterized by the blockage of sebaceous glands along with bacterial colonization of the follicular duct and inflammation. Collagen and tissue damage secondary to acne inflammation brings about severe skin texture changes, including scarring. Timely treatment initiation is crucial to prevent acne progression to scarring. Topical retinoids, topical oral antimicrobials, or a combination of both are recommended as the first-line therapy for acne. The objective of the present survey was to assess the role of 0.3% adapalene/2.5% benzoyl peroxide (BPO) combination in those with mild-moderate acne.

Objective: The objective of the present survey was to assess the role of 0.3% adapalene/2.5% BPO combination in those with mild-moderate acne.

Materials and Methods: A total of 438 healthcare professionals (dermatologists and cosmetologists) participated in the survey, through which their patients' experiences with the product were recorded.

Results: A significant proportion of the patient population (31%) experienced improvement just after 2 weeks of treatment with the combination. Most patients (84%) also found it easy to include the product in their skincare regime. Most healthcare professionals and patients (>80%) rated the effectiveness and tolerability of the intervention as 'good' to 'excellent'.

Conclusion: The survey confirms the 0.3% adapalene/2.5% BPO combination as an efficacious, easy-to-use topical treatment option for moderate to severe acne with the potential to impact acne scars, in line with findings from other studies examining the effect of this combination.

1. Introduction

Acne vulgaris is a multifactorial, chronic disorder of the pilosebaceous unit that manifests as inflammatory and non-inflammatory lesions.[1] It mainly affects the face, but the neck, back, trunk, and chest are also commonly affected sites.[1,2] Global skin disease prevalence studies report that acne continues to be the most common skin condition, making it the eighth most prevalent disease in the world.[2] Nearly 9.4% of the world population is affected by acne vulgaris.[2] While it mostly affects adolescents, it even persists into adulthood.[2] In India, the prevalence of acne in adolescents is 72.3%, and that among adults is 27%.[3]

Scarring is a common clinical sequela of acne and it affects nearly 95% of patients with acne to some extent.[2,4] An impaired wound healing response to cutaneous inflammation is known to cause scarring.[5] Genetic predisposition, squeezing acne, the time between acne onset and therapy initiation, and acne relapse are some of the risk factors of scarring.[2,6] Depending on whether there is

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a net loss or gain of collagen in the matrix remodeling stage of wound healing, scars can be classified into two major categories: atrophic and hypertrophic scars. atrophic scars associated with the loss of collagen are seen in 80-90% of the cases.[7]

Scars significantly impact the quality of life of patients with acne. Studies reveal that facial acne scars are largely discerned negatively by society. They cause embarrassment, frustration, anger, and sadness and are also linked with low self-esteem, poor academic performance, unemployment, body image alterations, and mental health issues like anxiety, depression, social phobias, and suicidal ideation.[2,4] The appearance of scars generally worsens either as a part of the natural aging process or due to other factors like prolonged sun exposure.[4] Timely intervention could considerably decrease the risk of scarring.[2]

A battery of treatment procedures exist for acne scars, including chemical peels, dermabrasion/ microdermabrasion, ablative/non-ablative lasers, photo thermolysis, punch techniques, tissue augmenting agents, needling, subcision, etc. However, evidence suggests that treating active acne early on before approaching scar treatment is the best way to prevent acne scarring. This also ensures that a fresh cycle is not created, in which active acne could progress to scars in already addressed areas.[5] Depending on the acne severity, topical retinoids or the combination of topical retinoids, topical/oral antimicrobial and/or benzoyl peroxide (BPO) is the first choice as a part of the current treatment algorithm for early intervention.[8]

Adapalene is a recommended third-generation retinoid that overturns the abnormal follicular keratinization process, thereby decreasing the number of inflammatory lesions and comedones. It blocks the pilosebaceous follicle inflammatory reactions and downregulates the *P. acnes*-mediated release of pro-inflammatory cytokines. BPO is a potent antimicrobial that produces a rapid bactericidal effect against *P. acnes* and has comedolytic properties. The adapalene-BPO combination is complementary and acts on most of the factors involved in acne pathophysiology. Additionally, adapalene augments the penetration of BPO via follicular microclimate modification. Evidence and guidelines support the use of the combination for all types of inflammatory acne, making it a valuable treatment option for long-term acne care.[9,10]

The objective of the present study was to find out the perception of healthcare professionals (dermatologists and cosmetologists) on acne scarring and record their patients' experiences with a combination (0.3% Adapalene/ 2.5% BPO) treatment approach for scar prevention in acne vulgaris.

2. Materials and Methods

2.1. Study design

A total of 438 healthcare professionals (dermatologists and cosmetologists) across India participated in this survey on '0.3% Adapalene/2.5% BPO' combination gel, through which their patients' experience with the product was recorded.

2.2. Study tool

Data was collected using a structured tool. A part of the questionnaire was developed in line with the scar risk assessment tool (prepared by global dermatologists, to help clinicians analyze the requirement for rapid and effective acne treatment for young adults).[11] The entire questionnaire has been mentioned in the supplementary material (Appendix I).

2.3. Data collection

The survey link was rolled out in 2 phases: In June and October (2022) and the healthcare professionals (dermatologists and cosmetologists) responses were recorded.

2.4. Data analysis

The survey responses were analyzed using Microsoft Excel spreadsheets version 2021.

3. Results

3.1. Patient demographics and acne characteristics

The survey data for a total of 2506 patients with acne were provided by the healthcare professionals where most of the patients were females (59%). Grade 3 facial acne was the most common diagnosis in patients (1180), followed by Grade 4 facial acne (730). Some of them also had truncal acne (271) (Figure 1).

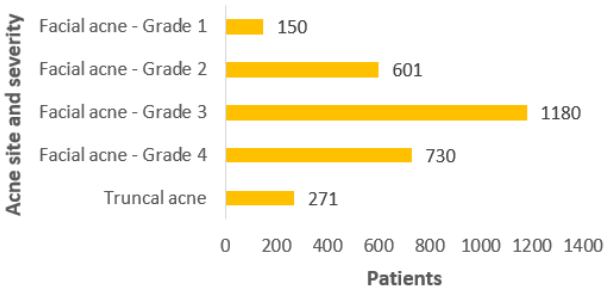

Figure 1: Acne site and severity in patients

About 50.26% of patients experienced acne for more than a year (Figure 2) and 48% stated that their relatives

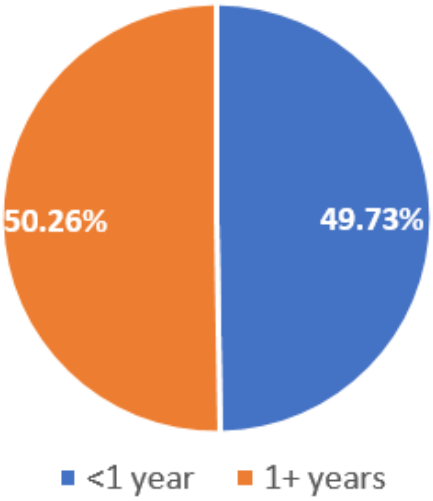

Figure 2: Acne duration in patients

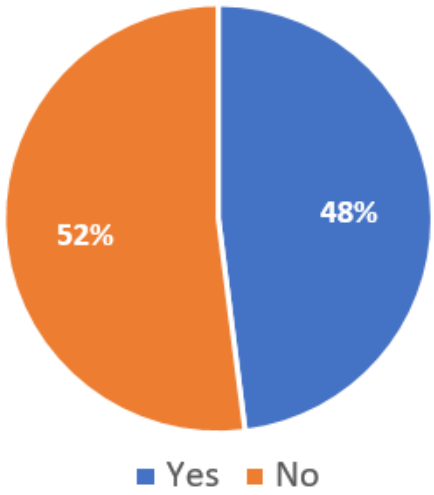

Figure 3: Relatives have acne-induced scars

have acne-induced scars (Figure 3), while the other half of the patient population experienced acne for a shorter duration (Figure 2) and reported no family history of acne-induced scarring (Figure 3).

When asked about picking and squeezing, the healthcare professionals stated that a large majority of their patients reported picking or squeezing their acne spots sometimes (35%), or rarely (25%) (Figure 4).

The healthcare professionals were shown a pictorial scale (as in the acne scar risk assessment tool), where they could select the severity of acne observed in their patients (a-e being low to high severity). Here, moderate severity acne ('c') was reported to be the worst ever acne experienced by most of their patients (34%) (Figure 5).

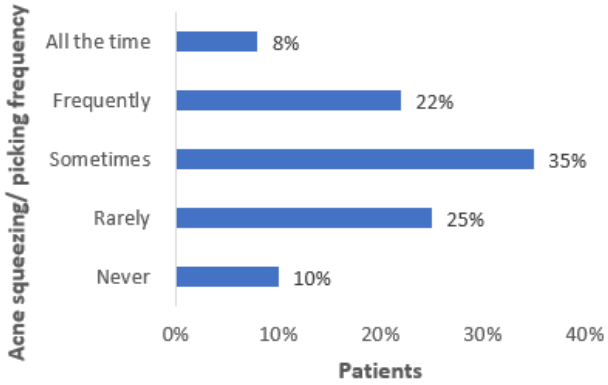

Figure 4: Acne squeezing/picking

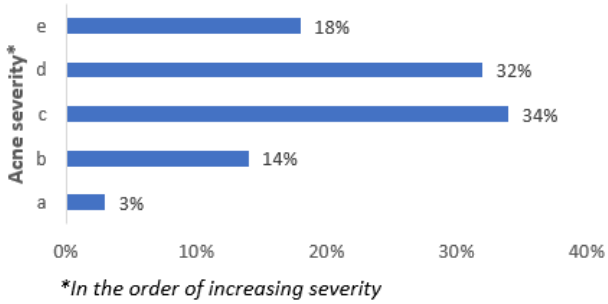

Figure 5: Worst severity in patients with acne (based on pictorial representation)

3.2. *Acne treatment*

The survey analysis revealed that most of the patients (54%) had not taken any prior treatment for acne.

When asked about the treatment of acne with the '0.3% Adapalene/2.5% BPO' combination, the healthcare professionals reported that a considerable proportion of the patient population (31%) showed the first sign of improvement right after 15 days of treatment initiation with gel (Figure 6), in line with other studies. The healthcare professionals also observed that a significant majority of patients (84%) found it easy to incorporate the gel into their skincare regimen (Figure 7).

3.2.1. *0.3% Adapalene/ 2.5% BPO Gel: Clinical assessment and patient experience*

The tolerability and effectiveness of gel was highly rated (good or excellent) by most dermatologists (>80%) (Figure 8). Similarly, healthcare professionals reported that most of the patients (>80%) found the product to have good or excellent tolerability and effectiveness (Figure 9).

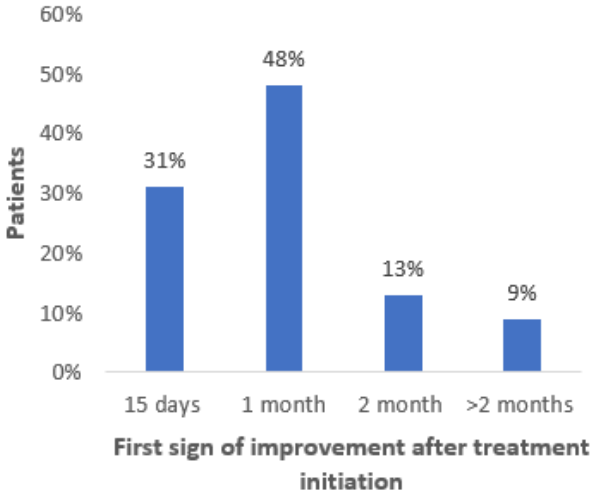

Figure 6: Improvement after treatment initiation

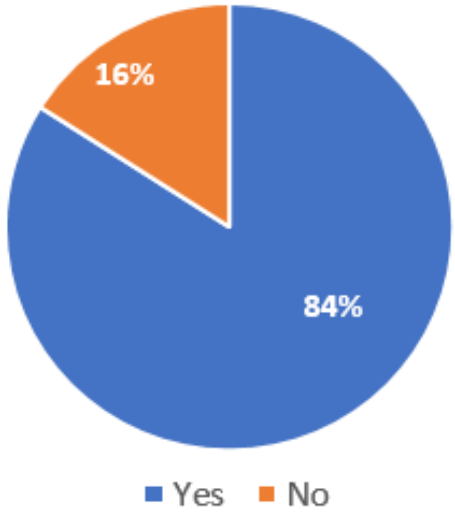

Figure 7: Ease of incorporating the gel into the skincare regime

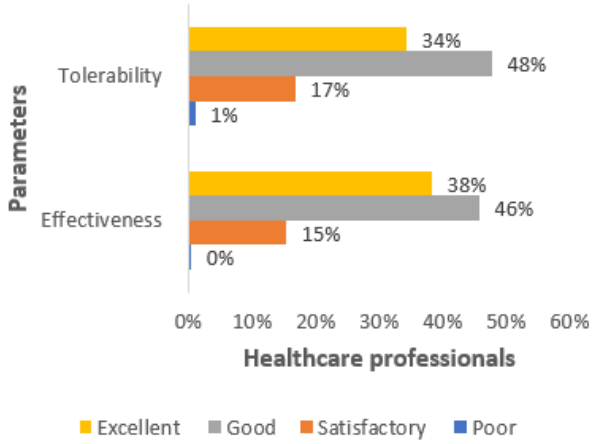

Figure 8: Clinical assesment of 0.3% Adapalene/2.5% BPO Gel

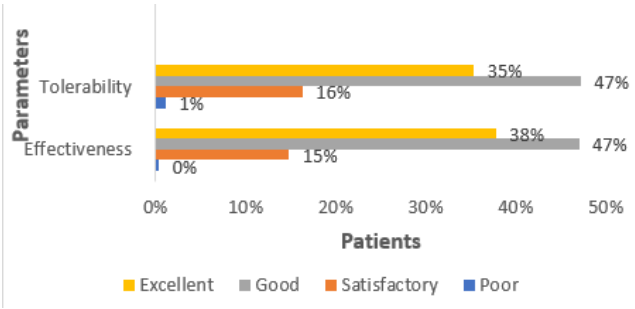

Figure 9: Patients' experience with 0.3% Adapalene/2.5% BPO Gel

4. Discussion

Impaired healing of active acne could result in scarring, which causes high physical and psychological distress.[12] Scarring hampers self-esteem and impacts social functioning and emotional well-being. Recent evidence emphasizes that it can develop in any person with acne, irrespective of severity. Lack of transparent healthcare professional-patient communication and treatment adherence by patients are some of the commonly encountered challenges in clinical practice, that could essentially lead to acne-induced scarring.[5,12]

Although major risk factors of acne-induced scarring have not been comprehensively studied, evidence-based tools developed to assess the risk of scarring mainly focus on the duration of acne, family history of atrophic scars, lesion manipulation, and acne severity.[10,13,14]

A study conducted to determine the profile of acne vulgaris in South India found a significant difference in the prevalence of scarring in patients who had acne for >3 years (56.03%) compared to those who had acne for <3 years (29.5%), (P<0.001).[15] In our survey, a considerable proportion of patients (50.26%) had acne for more than 1 year. Nearly half of the patient population in the current survey had relatives with post-acne scarring. This was similar to the finding noted in a study by SY Chuah *et al*., in which 51% of the patients had at least 1 family member with acne-induced scars.[16] These results indicate that genetic predisposition is a key factor to be considered while assessing the scarring risk in patients. Grade 3 facial acne was the most prevalent type in the present survey. In a study on suburban population by N. Hazarika *et al*., a highly significant association was found between moderate to severe acne and high-severity acne scars (P< 0.001).[17]

People with acne commonly tend to manipulate the lesions by subjecting them to picking/squeezing, as revealed by healthcare professionals through the current survey, which found that more than half of the patient population

often manipulate their acne spots (57%). Literature is very scarce on the effects of acne lesion manipulation, with a lack of certainty on whether squeezing or scooping lesions could lead to scarring. However, guidelines suggest that the focus should be on the greater damage caused to the skin through actions like persistent lesion scratching, squeezing, or scooping and suggest that healthcare professionals should advise patients with acne to abstain from excessive lesion manipulation behaviors.[18]

Prevention and early scar management leads to improved patient outcomes.[5,18] The adapalene-BPO combination is a guideline guideline-recommended strategy for acne.[9,10] In the present survey, the Adapalene 0.3%/BPO 2.5% combination gel was prescribed to patients with acne. The efficacy and tolerability of the formulation were rated as good to excellent by most of the healthcare professionals and patients in the survey (>80%). An open-label, comparative study on Adapalene- BPO combination gel found it to be more effective for the treatment of facial acne in Indian patients, compared to topical monotherapies, with comparable safety.[19]

Favourable results were produced by the Adapalene 0.3%/ BPO 2.5% gel in landmark trials and Phase 4 studies, in terms of reduction in acne severity, lesion count, scar count, and patient satisfaction.[20–24] In an earlier study, topical adapalene 0.3%-BPO 2.5% combination prevented and reduced atrophic scar formation. In line with the present survey results, patients experienced a considerable reduction in the number of acne lesions, right after 2 weeks of application of the combination.[21] Moreover, while atrophic scar count increased with the comparator vehicle by nearly 14%, the side of the face treated with adapalene-BPO gel resulted in a significant 15.5% reduction in scars over 24 weeks.[21]

The current survey is the first of its kind to assess the role of fixed dose combination of 0.3% Adapalene-2.5% BPO in moderate and severe patients with acne in India. It confirms that the adapalene-BPO gel is an efficacious, easy-to-use, once-daily topical formulation, for moderate to severe acne with the potential to impact acne and acne scars as well, consistent with findings from other studies examining the effect of this combination.

5. Conclusion

Acne-induced scarring can negatively impact an individual's physical, mental, and overall well-being. Early identification of the risk factors, offering relevant advice to patients with acne, and timely management of acne could help prevent scarring, with reduced outcome frequency. The 0.3% Adapalene-2.5% BPO combination has been established as a preferred treatment option across the spectrum of acne severity variables, owing to its proven efficacy-tolerability profile, as reflected in the present survey.

6. Source of Funding

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7. Conflict of Interest

None.

8. Acknowledgment

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References

1. Tan AU, Schlosser BJ, Paller AS. A review of diagnosis and treatment of acne in adult female patients. *Int J Womens Dermatol*. 2017;4(2):56–71.
2. Layton AM, Thiboutot D, Tan J. Reviewing the global burden of acne: how could we improve care to reduce the burden? *Br J Dermatol*. 2021;184(2):219–25.
3. Deuri J, Talukdar K, Dutta G. A study of clinical pattern of acne vulgaris patients presenting in a tertiary care hospital. *Int J Pharm Sci*. 2022;14(11):43–7.
4. Fife D. Practical evaluation and management of atrophic acne scars: tips for the general dermatologist. *J Clin Aesthet Dermatol*. 2011;4(8):50–7.
5. Connolly D, Vu HL, Mariwalla K, Saedi N. Acne Scarring-Pathogenesis, Evaluation, and Treatment Options. *J Clin Aesthet Dermatol*. 2017;10(9):12–23.
6. InformedHealth.org [Internet]. Cologne, Germany: Institute for Quality and Efficiency in Health Care (IQWiG); 2013. [Updated 2019 Sep 26]. Available from: https://www.ncbi.nlm.nih.gov/books/NBK279208/.
7. Fabbrocini G, Annunziata MC, D'Arco V, Vita VD, Lodi G, Mauriello MC, et al. Acne scars: pathogenesis, classification and treatment. *Dermatol Res Pract*. 2010;p. 893080. doi:10.1155/2010/893080.
8. Thiboutot D, Gollnick H, Bettoli V. Global Alliance to Improve Outcomes in Acne. New insights into the management of acne: an update from the Global Alliance to Improve Outcomes in Acne group. *J Am Acad Dermatol*. 2009;60(5):1–50.
9. Kim SY, Ochsendorf FR. New developments in acne treatment: role of combination adapalene-benzoylperoxide. *Ther Clin Risk Manag*. 2016;12:1497–506. doi:10.2147/TCRM.S94062.
10. Reynolds R, Yeung H, Cheng C, Cook-Bolden F, Desai SR, Druby K, et al. Guidelines of care for the management of acne vulgaris. *J Am Acad Dermatol*. 2024;90(5):1006.e1–e30.
11. Tan J, Thiboutot D, Gollnick H. Development of an atrophic acne scar risk assessment tool. *J Eur Acad Dermatol Venereol*. 2017;31(9):1547–54.
12. Tan J, Beissert S, Cook-Bolden F, Chavda R, Harper J, Hebert A, et al. Evaluation of psychological well-being and social impact of atrophic acne scarring: A multinational, mixed-methods study. *JAAD Int*. 2021;6:43–50. doi:10.1016/j.jdin.2021.11.006.
13. Dréno B, Gold L. Acne Scarring: Why We Should Act Sooner Rather Than Later. *Dermatol Ther (Heidelb)*. 2021;11(4):1075–8.
14. Tan J, Kang S, Leyden J. Prevalence and Risk Factors of Acne Scarring Among Patients Consulting Dermatologists in the USA. *J Drugs Dermatol*. 2017;16(2):97–102.
15. Adityan B, Thappa DM. Profile of acne vulgarisóA hospital-based study from le of acne vulgarisóA hospital-based study from South India. *Indian J Dermatol Venereol Leprol*. 2009;75(3):272–8.
16. Chuah SY, Goh CL. The Impact of Post-Acne Scars on the Quality of Life Among Young Adults in Singapore. *J Cutan Aesthet Surg*. 2015;8(3):153–8.

17. Hazarika N, Rajaprabha RK. Assessment of Life Quality Index Among Patients with Acne Vulgaris in a Suburban Population. *Indian J Dermatol*. 2016;61(2):163–8.
18. National Guideline Alliance (UK). Evidence review for risk factors for scarring due to acne vulgaris: Acne vulgaris: management: Evidence review L. London: National Institute for Health and Care Excellence (NICE); 2021 Jun. (NICE Guideline, No. 198.). Available from: https://www.ncbi.nlm.nih.gov/books/NBK573051/.
19. Gowda A, Sanmitha, Satish. Comparative study of clinical efficacy and side effects of adapalene 0.1% gel and benzoyl peroxide 2.5% gel as monotherapies and combination therapy in facial acne: Indian perspective. *J Evol Med Dent Sci*. 2014;3(14):3786–98.
20. Gold LS, Weiss J, Rueda MJ, Liu H, Tanghetti E. Moderate and Severe Inflammatory Acne Vulgaris Effectively Treated with Single-Agent Therapy by a New Fixed-Dose Combination Adapalene 0.3 %/Benzoyl Peroxide 2.5 % Gel: A Randomized, Double-Blind, Parallel-Group, Controlled Study. *Am J Clin Dermatol*. 2016;17(3):293–303.
21. Dréno B, Bissonnette R, Gagné-Henley A. Prevention and Reduction of Atrophic Acne Scars with Adapalene 0.3%/Benzoyl Peroxide 2.5% Gel in Subjects with Moderate or Severe Facial Acne: Results of a 6-Month Randomized, Vehicle-Controlled Trial Using Intra-Individual Comparison. *Am J Clin Dermatol*. 2018;19(2):275–86.
22. Rosso JD, Gold LS, Johnson SM, Rueda MJ, Baldwin H, Lain EL, et al. Efficacy and Safety of Adapalene 0.3%/Benzoyl Peroxide 2.5% Gel Plus Oral Doxycycline in Subjects With Severe Inflammatory Acne Who Are Candidates for Oral Isotretinoin. *J Drugs Dermatol*. 2018;17(3):264–73.
23. Dubois J, Ong G, Petkar G. Patient-Reported Outcomes in Acne Patients With Skin of Color Using Adapalene 0.3%-Benzoyl Peroxide 2.5%: A Prospective Real-World Study. *J Drugs Dermatol*. 2019;18(5):514.
24. Gold LS, Werschler W, Mohawk J. Adapalene/ Benzoyl Peroxide Gel 0.3%/ 2.5%: Effective acne therapy regardless of age or gender. *J Drugs Dermatol*. 2017;16(6):582–9.

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