Article published online: 2024-07-09

THIEME OPEN ACCESS

Case Report

Reducing Fear and Enhancing Aesthetics: Orthodontic Management with Video Self-Modeling in an Adolescent with Autism Spectrum Disorder

Kripa Dutta[1,*] Swagata Saha[1,*] Harshita Reddy[1] Ngangbam Reenayai[1] Rajmohan Y Shetty[1] Kavita Rai[1] Manju Raman Nair[1]

[1] Department of Pediatric and Preventive Dentistry, A. B. Shetty Memorial Institute of Dental Sciences, NITTE (Deemed to be University), Mangaluru, Karnataka, India

J Health Allied Sci[NU]

Address for correspondence Manju Raman Nair, BDS, MDS, PhD, Department of Pediatric and Preventive Dentistry, A. B. Shetty Memorial Institute of Dental Sciences, NITTE (Deemed to be University), Deralakatte, Mangaluru, Karnataka 575018, India (e-mail: drmanjur@nitte.edu.in).

Abstract

Introduction Autism spectrum disorder (ASD) presents challenges in social interaction and communication, particularly in the context of orthodontic treatment where patients may experience heightened anxiety. This case report introduces an innovative approach that utilizes video self-modeling (VSM) to address these challenges and enhance the orthodontic treatment experience for adolescents with ASD.

Case Report An 11-year-old female patient with ASD required orthodontic treatment. Conventional behavioral guidance techniques were unsuccessful because of the patient's anxiety and sensory sensitivity. Utilizing VSM, we crafted personalized video content to illustrate the dental procedure, significantly alleviating patient's fear and anxiety. This approach led to the successful completion of her orthodontic treatment.

Conclusion This case report underscores the effectiveness of VSM as a valuable behavioral guidance technique in orthodontic treatment for adolescents with ASD. By alleviating anxiety and fear, VSM has the potential to significantly enhance the dental care experience and promote improved oral health and well-being in this specific patient population.

Keywords

- autism spectrum disorder
- orthodontic treatment
- behavior guidance techniques
- video self-modeling (VSM)
- anxiety
- sensory sensitivities
- oral health
- dental care
- adolescent

Introduction

Autism spectrum disorder (ASD), characterized by challenges in social interaction, communication, and repetitive behaviors,[1] affects approximately 1 in 100 children globally.[2] This condition poses unique challenges in various settings, with dental care being a notable concern.[3] The experiences of children with ASD are further complicated by sensory overload, exposure to unfamiliar stimuli, and communication difficulties, all of which contribute to their increased anxiety and fear.[4]

In response to these complexities, there is a critical need for tailored behavior-guidance techniques that extend beyond traditional approaches. Current research emphasizes the shortcomings of conventional methods and highlights the importance of innovative and personalized strategies. Within this context, video self-modeling (VSM) has emerged as a promising, yet underexplored tool that presents an innovative approach to effectively manage fear and anxiety in individuals with ASD.

* *Both authors should be considered as joint first author as they contributed equally.*

DOI https://doi.org/10.1055/s-0044-1788051.
ISSN 2582-4287.

Thieme Medical and Scientific Publishers Pvt. Ltd., A-12, 2nd Floor, Sector 2, Noida-201301 UP, India

Case Report

An 11-year-old girl diagnosed with ASD visited the dental outpatient department with concerns regarding forward positioning of her upper front teeth. During her first visit, she exhibited signs of photophobia and was reluctant to undergo dental care. To assess anxiety and behavior, we used the Facial Image Scale, Venham's picture test, and Frankel's behavior rating scale. Venham's picture test helps children express their dental anxiety by choosing images that resemble their feelings. It generates scores ranging from 0 (no anxiety) to 5 (extreme anxiety). Simultaneously, we assessed her behavior using Frankel's behavior rating scale, categorizing it from definitely positive (score = 4) to definitely negative (score = 1). Parental assistance was crucial for these assessments.

Following an unsuccessful initial dental visit with conventional behavioral guidance techniques, we prepared a video in which the child's face was incorporated into the footage of an ideal dental visit (►**Fig. 1**). This video was shown to her for 2 weeks prior to her next appointment. The subsequent dental visits showed significant improvements in both assessments (►**Table 1**).

Inspired by this progress, we created more self-modeling videos for each subsequent treatment, reinforcing positive changes, encouraging repetition, and building trust. The treatment plan involved 6 months of twin-block therapy followed by fixed orthodontic therapy (►**Fig. 2**). The treatment spanned 5 years. The results were very promising and met the aesthetic demands of the patient and her family. After the completion of orthodontic treatment, individualized home care measures were established and further emphasized using VSM.

Discussion

Autism, originally described by Kanner in 1943, is a pervasive developmental disorder characterized by difficulties in social interactions, communication, and repetitive behaviors. Beyond these core characteristics, individuals with autism may be prone to phobias, sleep disturbances, eating difficulties, temper tantrums, and self-directed aggression.[1,5] In dental settings, children with ASD often struggle with sensory-induced fear, leading to the avoidance of care. Pediatric dentists use techniques, such as systematic desensitization and visual pedagogy, to help children with ASD adapt. However, traditional methods face challenges owing to their sensory sensitivity, communication issues, and limited generalization. Recognizing individuals with ASD as visual learners, VSM has emerged as a powerful tool to aid in adaptation and improve general well-being, particularly in dental care.

Conclusion

Pediatric dentists face unique challenges when providing dental care to children with ASD, including increased anxiety and fear due to sensory overload, unfamiliar stimuli, and communication difficulties. Innovative behavioral guidance

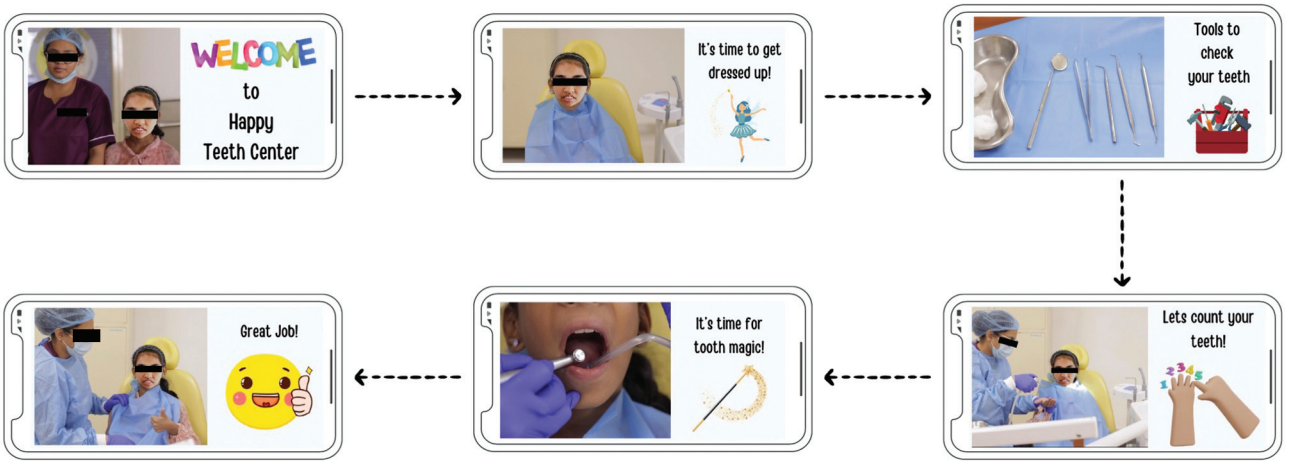

Fig. 1 Insights from video self-modeling: a child's first dental visit.

Table 1 Comparison of anxiety and behavior rating scores from initial to final dental visits, with and without video self-modeling

	First dental visit (without video self-modeling)	Second dental visit (with video self-modeling)	Final dental visit (with video self-modeling)
Anxiety score (Facial Image Scale)	4	2	1
Anxiety score (Venham's picture test)	5	2	0
Behavior rating score (Frankel's behavior rating scale)	2	3	4

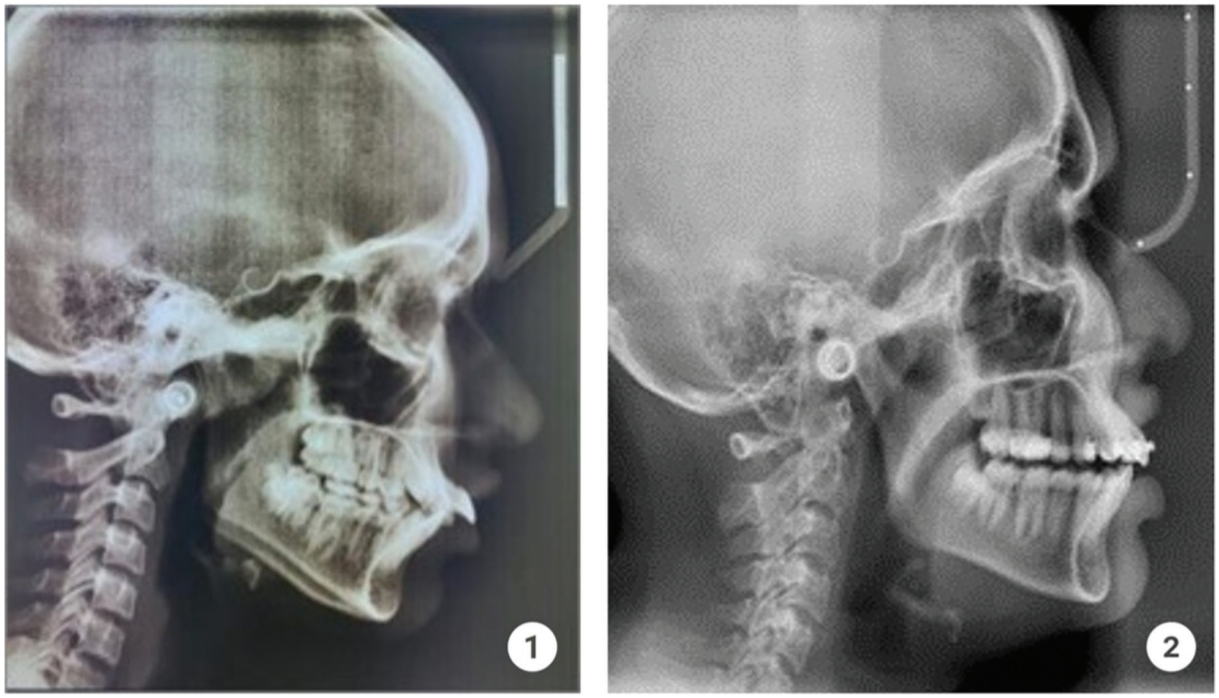

Fig. 2 Cephalometric changes before (1) and after orthodontic intervention (2).

techniques are crucial for addressing the diverse needs of individuals with ASD, highlighting the importance of reducing anxiety, facilitating communication, and building trust between dental care providers and children with ASD. VSM has been introduced as an effective and underexplored tool for managing dental treatment in children with ASD, offering a promising approach to alleviate anxiety and enhance dental care experiences, and emphasizing its importance in the field of pediatric dentistry.

Data Availability Statement

Data supporting the findings of this study are available upon request from the corresponding author.

Ethical Approval

The Ethics Committee at A.B. Shetty Memorial Institute of Dental Sciences, Mangalore, Karnataka, India approved this case report (ETHICS/ABSMIDS/333/2023).

Permission to Reproduce Material from Other Sources

No copyrighted material was used to create this case report. All content was original or used with proper authorization, and no permissions for reproduction were required.

Patient Consent

The mother (legal guardian) of the patient and the child who participated in creating the video self-modeling provided consent for the publication of this case report, and the patient provided assent.

Authors' Contributions

H.R., N.R., S.S., and K.D. treated the patient; S.S. and K.D. wrote the manuscript; and K.R., Y.R.S., and M.R. edited the manuscript.

Conflict of Interest

None declared.

Acknowledgments

We express sincere gratitude to the postgraduates, teaching, and non-teaching faculty of A. B. Shetty Memorial Institute of Dental Sciences, NITTE (Deemed to be University), Deralakatte, Mangaluru, Karnataka, India for their unwavering support and encouragement. Our heartfelt thanks extend to the patient and the parent of the child with autism, as well as the child who actively participated in the creation of the video self-modeling content.

References

1 Lord C, Elsabbagh M, Baird G, Veenstra-Vanderweele J. Autism spectrum disorder. Lancet 2018;392(10146):508–520
2 Zeidan J, Fombonne E, Scorah J, et al. Global prevalence of autism: a systematic review update. Autism Res 2022;15(05):778–790
3 Delli K, Reichart PA, Bornstein MM, Livas C. Management of children with autism spectrum disorder in the dental setting: concerns, behavioural approaches and recommendations. Med Oral Patol Oral Cir Bucal 2013;18(06):e862–e868
4 Dowrick PW. A review of self modeling and related interventions. Appl Prev Psychol 1999;8(01):23–39
5 Jensen VK, Spannagel SC. The spectrum of autism spectrum disorder: a spectrum of needs, services, and challenges. J Contemp Psychother 2011;41(01):1–9

