



## ARTICLE REVIEW

### Success in dental intervention in autistic children

Éxito en la intervención odontológica en niños autistas

Adriana Katherine Quezada-Quiñonez   , Nancy Catalina Suárez-Andrade  ,  
Mayerli Massiel Rojas-Salgado  , Mayerli Anahí Tapia-Mejía 

<sup>1</sup>Universidad Regional Autónoma de los Andes UNIANDES, Ibarra- Ecuador.

**Received:** September 30, 2024

**Accepted:** October 01, 2024

**Published:** October 11, 2024

**Citar como** Quezada-Quiñonez AK, Suárez-Andrade NC, Rojas-Salgado MM, Tapia-Mejía MA. Éxito en la intervención odontológica en niños autistas. Rev Ciencias Médicas [Internet]. 2024 [citado: fecha de acceso]; 28(S2): e6556. Disponible en: <http://revcmpinar.sld.cu/index.php/publicaciones/article/view/6556>

#### ABSTRACT

**Introduction:** children with Autism Spectrum Disorder present special behaviors and needs that make dental intervention difficult. Among the most common oral diseases in children with this pathology are: malocclusions, self-injurious behaviors, bruxism, lip biting, digital suction and onychophagia.

**Objective:** to describe current dental interventions for children with Autism Spectrum Disorder.

**Methods:** scientific articles detected through Google Scholar in SciELO and Pubmed were consulted. In addition, various research resources were used, including journals, books and web pages, which helped to study the circumstances in which children with ASD are found in dental care, making it possible to collect updated and reliable data that will help the recipient in their search for the methodological and systematic process of the behavior of these patients.

**Development:** dental intervention in children with Autism Spectrum Disorder can be difficult due to their behavior and sensitivity. However, there are several techniques that can be used, such as: explaining, demonstrating and practicing the procedures in advance, desensitizing the child gradually, controlling the voice, applying applied behavior analysis, using physical control techniques and considering the use of pharmacological techniques in special cases. There are also specific techniques such as: the use of pictograms that help to understand the information visually, and it is suggested to use them to teach them how to brush their teeth correctly.

**Conclusions:** it is important to understand the special needs of these children and to use adapted techniques to provide them with adequate treatment.

**Keywords:** Autistic; Behavior; Children; Dentistry; Techniques.

## RESUMEN

**Introducción:** los niños con Trastorno del Espectro Autista presentan comportamientos y necesidades especiales que dificultan la intervención odontológica. Entre las enfermedades bucales más comunes en niños con esta patología, se encuentran: maloclusiones, comportamientos autolesivos, bruxismo, morderse los labios, succión digital y onicofagia.

**Objetivo:** describir las intervenciones odontológicas actuales para niños con Trastorno del Espectro Autista.

**Métodos:** se consultaron artículos científicos detectados a través de Google Académico en *SciELO* y *Pubmed*. Además, se utilizaron diversos recursos de investigación en los cuales se incluyen revistas, libros y páginas web, que ayudaron a estudiar las circunstancias en la cual se encuentran los niños con TEA en atención odontológica, permitiendo recolectar datos actualizados y de confianza que permitan ayudar al receptor en su búsqueda sobre el proceso metodológico y sistemático del comportamiento de estos pacientes.

**Desarrollo:** la intervención odontológica en niños con Trastorno del Espectro Autista puede ser difícil debido a su comportamiento y sensibilidad. Sin embargo, existen varias técnicas que pueden ser utilizadas, como: explicar, demostrar y practicar los procedimientos con anticipación, desensibilizar al niño gradualmente, controlar la voz, aplicar el análisis del comportamiento aplicado, utilizar técnicas de control físico y considerar el uso de técnicas farmacológicas en casos especiales. Además existen técnicas específicas como: el uso de pictogramas que ayuda a comprender la información de manera visual, y se sugiere utilizarlos para enseñarles a cepillarse los dientes correctamente.

**Conclusiones:** se destaca la importancia de comprender las necesidades especiales de estos niños y utilizar técnicas adaptadas para brindarles un tratamiento adecuado.

**Palabras clave:** Autismo; Comportamiento; Niños; Odontología; Técnicas.

## INTRODUCTION

Through research it is now known that around 100 out of 10,000 children have been diagnosed with Autism Spectrum Disorder (ASD), data that have been published by Autism Research, therefore, an increasing number of these children will be found in regular dental practice who will require special treatment and considerations in their oral health.<sup>(1)</sup> Children with ASD present different behaviors compared to children without the disorder, such as deviations in social and communicative development, loss of visual gaze and vocalizations, decreased social interaction and change in behaviors or interests.<sup>(2)</sup>

This limits the dentist from being able to do his job in an easier and more efficient way, because these children have fear, sensitivity or sudden reactions to noises or sensations in the mouth due to the use of dental instruments at the time the professional proceeds to perform the dental treatment, therefore it is recommended that professionals prepare themselves beforehand and use specialized techniques, use creativity and generate a passive environment in order to treat this type of patients and provide an ethical service.<sup>(3)</sup>

The diseases that children with ASD present are: malocclusions, self-harming behaviors, bruxism, lip biting, digital sucking and onychophagia,<sup>(4)</sup> this makes oral health not the most adequate in infants and they cannot lead an optimal lifestyle, so it is recommended that children visit the dentist at least twice a year and if they have any pathology it should be treated and controlled more frequently.<sup>(5)</sup>

Parents are fundamental support for the oral health of these children, to help them with their daily dental hygiene and to encourage or motivate children that oral health is very important.<sup>(6)</sup>

Therefore, the objective of the present study is to describe dental interventions in children with Autism Spectrum Disorder.

## METHODS

For the study carried out, various research resources were used, including journals, scientific articles, books and web pages, which helped to study the circumstances in which children with ASD are found in dental care, allowing the collection of updated and reliable data that help the recipient in their search for the methodological and systematic process of the behavior of these patients, thus allowing the resolution of doubts by the informed subject.<sup>(7)</sup>

In addition, research techniques such as documentary research, content analysis and phenomenological study were used, which were useful for collecting data on children with ASD. With the information collected, characteristics of quantitative text were identified due to the collection of specific information such as figures and percentages that allowed observing the general panorama of the situation of patients with ASD and the necessary support was generated to reach the conclusions of the research. Characteristics of qualitative text were also recognized, because the information collected varies for each author and researcher, which scientifically demonstrate different points of view and approaches to dental intervention in children with ASD, expanding and allowing access to more information for the reader.

### Inclusion criteria

Type of languages: Spanish, English and Portuguese

Publication period: From 2017 to 2023

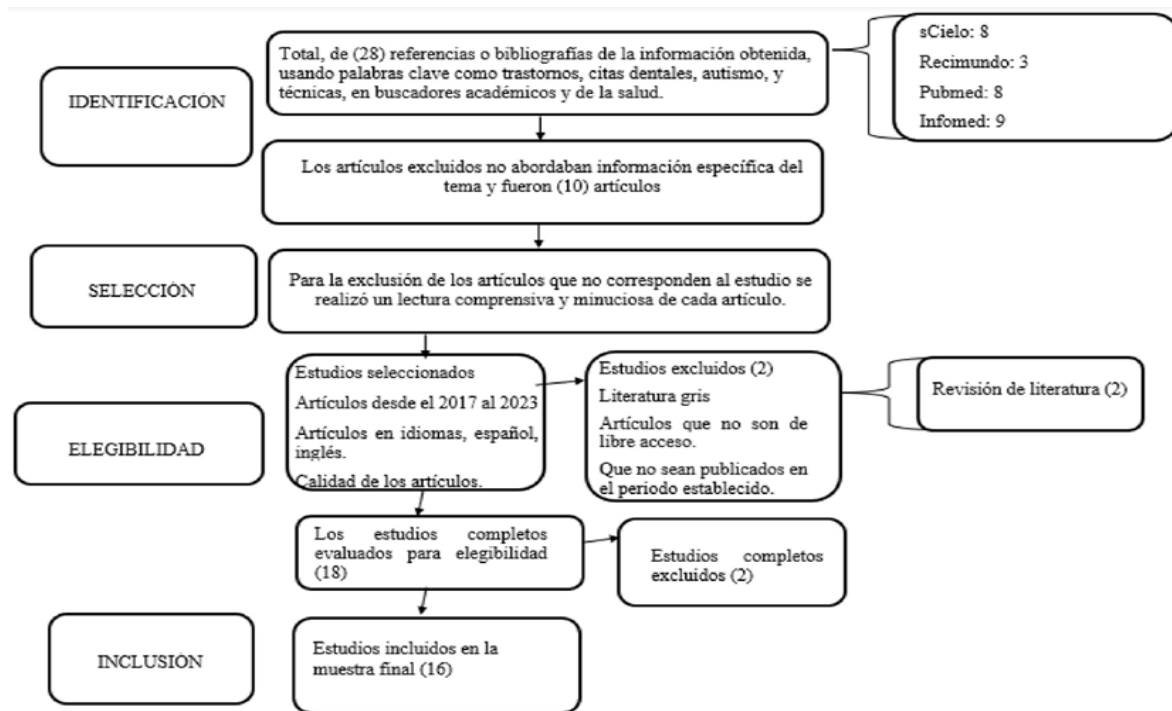
Quality of the articles.

### Exclusion criteria

Grey literature

Articles that are not freely accessible.

That they are not published within the established period.



## DEVELOPMENT

Autism Spectrum Disorder (ASD) is a neurobiological developmental disorder of a cognitive nature that manifests at 3 years of age and lasts a lifetime.<sup>(8)</sup>

A study carried out by the Spanish Federation of Autism indicates that worldwide 5 out of 1,000 people have a diagnosis of autism, with the highest prevalence in males, with 80% affected, which translates into an increase in autistic patients who will attend dental consultations.<sup>(9)</sup>

Dental intervention in children with ASD is difficult because they have behaviors or attitudes that are somewhat difficult to manage, but it is not an impediment since there are multiple options to provide them with adequate treatment.<sup>(10)</sup>

It has been shown that the sensations captured by these patients can cause a negative effect on their behavior during the visit to the dentist. The child can be prepared in advance for visual, tactile or pressure stimuli that may stress him, although an important point to take into account is that there is no standard procedure to treat these patients, but a series of measures can be taken.<sup>(11)</sup>

There are different techniques to be able to care for these patients, which are the following: <sup>(12)</sup>

**Table 1.** Care techniques

Explain, demonstrate, practice	Pictures or objects can be used to help explain what will happen, and simple language is also recommended. This is beneficial for them to understand certain aspects of the procedure before they experience them in the dental office.
Desensitize	Certain steps are followed in which the patient is helped to slowly learn and experience what will be done during their visit. Distractions or rewards can be used once they accept and successfully complete the treatment.
Voice control	Using a calm, reassuring, natural voice, while controlling the volume of your voice and gently changing your tone of voice to keep the child's attention.
Applied Behavior Analysis	This method helps to understand why and how to teach specific skills, for example, brushing your teeth. This technique helps the child to carry out the activity with a series of specific steps that will be taught separately one by one and rewarded when they learn.
Pharmacological techniques	Administration of sedatives in combination with local anesthetics. These include nitrous oxide, diazoline, hydrochloride products and midazolam. They should only be used in problematic patients as they cause restriction of physical movement.
Preparation at home	Professionals must work together with families to help and improve the patient experience and will reinforce confidence in managing the child's attitude.

Fountain:Saavedra and Ortega, 2020

There are some tips for the dentist when caring for patients with ASD, among which are: pictograms and four-handed handling.<sup>(13)</sup>

**Pictograms**

The use of pictograms helps autistic patients to better understand, assimilate and comprehend the information presented to them visually, since with the images they will be able to keep them in their thoughts.<sup>(14)</sup>

Pictograms should be simple, concrete and schematic, easy to handle and should always be accompanied by clear and simple language, depending on the age of the patient and the understanding that he or she has.<sup>(15)</sup>

With the help of the pictogram, the patient can also be taught to brush his teeth properly by indicating through drawings that he should brush his teeth after eating. These pictograms should be placed in visible places.<sup>(15)</sup>

To complement the support, the following technique is suggested which will be useful in the dental interventions to be carried out:

#### Four-handed operation

It is the work that is carried out by two people, the dentist and his assistant, who work at the same time intelligently and with tasks assigned to each member of the team.<sup>(16)</sup>

This technique is specifically used in Pediatric Dentistry; the presence of a trained and qualified assistant makes it easier to handle the instruments and prepare the material, increasing efficiency within the dental office and greatly helping to manage the patient's behavior and collaboration.<sup>(16)</sup>

All the information presented above facilitates the required adaptation process and improves the patient experience.

Autores	Título	Resumen	País	Año de publicación	Revista
Noemí Leiva Villagra, Daniella Vergara Silva	Protocol of Attention Orthodontic in Patients with Disorder of the Autism Spectrum (TORCH)	There is an increase in the number of patients with needs special, among them, several diagnosed with autism spectrum disorder, in addition they have high requirements of orthodontic treatment due to malocclusions.	Chili	2017	SciELO
Andrés Barragán; Jessica Llerena; Diego Guillen; Jhannder Gonzales; Lilibeth Castillo	Dental management in patients with oral disorders autism spectrum	Patients with ASD receive the same dental care as other patients, but it is recommended that people with ASD visit the dentist before direct care, so that they become familiar with the environment and the professional.	Ecuador	2022	RECIMUNDO
A. Hervás Zúñiga, N. Balmaña, M. Salgado	Autism spectrum disorders (TORCH)	The etiology of autism has not yet been verified, but there are many speculations, the predominant ones are biological, and it is also known that early detection and thus a treatment will greatly improve the symptoms.	Barcelona	2017	Adolescence Ema
Lord.C., Hyman, S.L., Handleman, J.S.	What are autism spectrum disorders?	Some risk factors are presented as to why children with TEA, in addition to the treatments that should be received when diagnosed	States Joined	2022	Centers for the Control and the Prevention Of Diseases

		by a doctor since there is no laboratory test that confirms this disorder.			
Patricia Nafria Vicente	Trastorno generalizado del desarrollo   Qué es y síntomas	El Trastorno Generalizado del Desarrollo contiene Deficiencias y alteraciones fuertes como en la comunicación y relaciones sociales.	Madrid	2020	Psicología
Ariza Charo	Terapia Orofacial y Miofuncional	La Terapia Orofacial y Miofuncional es una rama de la logopedia que se ocupa de la prevención, evaluación, diagnóstico, educación y rehabilitación de los desequilibrios que existen en el sistema orofacial, muy relacionado con los síntomas del autismo.	Madrid	2019	CRENE Centro rehabilitación neurológica
Patricia Nafria Vicente	Pervasive developmental disorder   What it is and symptoms	Pervasive Developmental Disorder contains Severe deficiencies and alterations such as in communication and social relationships.	Madrid	2020	Psychology
Lucero Vázquez de Lara, Saavedra José Alberto Hachity Ortega	Stomatological management of patients with disorder of the autism spectrum	The The symptoms that these children present are a challenge for the professional, some strategies are to include visual preparation techniques as well as the Progressive desensitization.	Mexico	2020	Current Dentistry
Mónica Herrera Moncada, Phenélope Campos-Lara, Juan Carlos Hernández Cabanillas, et al.	Autism and Pediatric Dentistry: TO Scoping Review	The following clinical problems were found to be the most important: patient behavior control, prevalence/incidence of dental caries, orthodontic management.	Germany	2019	Pubmed

**CONCLUSIONS**

Autism is considered the most serious mental disorder of childhood, so these patients need a great deal of dedication from their families and society to improve their quality of life. Their prognosis depends, to a large extent, on early diagnosis and timely, multidisciplinary and intersectoral treatment.

### Conflict of Interest

The authors declare that there is no conflict of interest.

### Authorship Contribution

**AKQQ:** Conceptualization, Research, Methodology, Project Management, Software, Supervision, Validation, Visualization, Writing - review and editing.

**NCSA:** Conceptualization, Formal Analysis, Research, Supervision, Validation, Visualization, Writing - review and editing.

**MMRS:** Conceptualization, Resources, Writing - original draft, Writing - review and editing.

**MATM:** Conceptualization, Data Curation, Resources, Software, Writing - original draft, Writing - review and editing.

### Financing

The authors did not receive funding for this research.

### BIBLIOGRAPHIC REFERENCES

1. Leiva-Villagra N, Vergara-Silva D. Protocolo de Atención Ortodóncica en Pacientes con Trastorno del Espectro Autista (TEA). *Int. J. Odontostomat.* [Internet]. 2017 Dic [citado 21/01/2023]; 11(4): 399-404. Disponible en: <http://dx.doi.org/10.4067/S0718-381X2017000400399>
2. Barragán-Ordóñez A, Llerena-Samaniego JV, Guillen-Gordillo, Gonzalez-Yaguana J, Castillo-Gordillo L. Manejo odontológico en pacientes con trastorno del espectro autista RECIMUNDO [Internet]. 2022 [citado 21/01/2023]; 6(4): 170-180. Disponible en: <https://dialnet.unirioja.es/servlet/articulo?codigo=8603951>
3. Zuñiga HA, Balmaña N, Salgado M. Los trastornos del espectro autista. *Pediatr Integral* [Internet]. 2017 [cited 21/01/2023]; XXI(2): 9–108. Disponible en: <https://www.adolescenciasema.org/ficheros/PEDIATRIA%20INTEGRAL/Trastorno%20del%20Espectro%20Autista.pdf>.
4. Martínez León MM, Castro de la Calle LD, Irurtia Muñiz MJ, Martínez León C, Queipo Burón D. Paciente autista en el ámbito odontológico: autoagresiones versus maltrato infantil. *Gaceta internacional de ciencias forenses*. Universidad de Valencia. Unidad Docente de Medicina Legal [Internet]; 2013 [cited 21/01/2023]; 61-73. Disponible en: <https://uvadoc.uva.es/handle/10324/65448>
5. Persico AM, Ricciardello A, Cucinotta F. The psychopharmacology of autism spectrum disorder and Rett syndrome. *Handb Clin Neurol* [Internet]. 2019 [citado 21/01/2023]; 165: 391-414. Disponible en: <https://pubmed.ncbi.nlm.nih.gov/31727226/>
6. Beggiato A, Peyre H, Maruani A, Scheid I, Rastam M, Amsellem F, et al. Gender differences in autism spectrum disorders: Divergence among specific core symptoms. *Autism Res* [Internet]. 2017 Apr [cited 21/01/2023]; 10(4): 680-689. Disponible en: <https://pubmed.ncbi.nlm.nih.gov/27809408/>



7. Serratos E. Síndrome de Heller: síntomas, características, causas y tratamiento. Isfap [Internet]; 2022 [cited 24/01/2023]. Available from: <https://isfap.com/sindrome-heller-sintomas-tratamiento/>.
8. Nafría Vicente P. Trastorno generalizado del desarrollo. Qué es y síntomas [Internet]. Psicología nafria; 2020 [cited 28/12/2022]. Available from: <https://psicologianafria.com/trastorno-generalizado-del-desarrollo/#:~:text=El%20Trastorno%20Generalizado%20del%20Desarrollo%20se%20trata%2C%20en%20concreto%2C%20de,c>
9. Ariza C. Terapia Orofacial y miofuncional. Crene[Online]; 2022 [cited 14/12/2022]. Available from: <https://crene.es/logopedia/terapia-orofacial-y-miofuncional/>.
10. Vitoria Francisco. Anatomía de la Lengua [Online]. UFV; 2022 [cited 31/01/2023]. Available from: <https://www.ufv.es/cetys/blog/anatomia-de-la-lengua/>.
11. Pimienta Pérez N, González Ferrer Y, Rodríguez Martínez L. Autismo infantil, manejo en la Especialidad de Odontología. Acta Méd Centro [Internet]. 2017 [citado 01/10/2024]; 11(4): 70-80. Disponible en: <https://revactamedicacentro.sld.cu/index.php/amc/article/view/823>
12. Gao L, Liu XN. Status Quo and Advanced Progress in Oral Health Care and Treatment of Children with Autism Spectrum Disorder: A Literature Review. Chin J Dent Res [Internet]. 2022 Dec 8 [citado 01/10/2024]; 25(4): 251-259. Disponible en: <https://pubmed.ncbi.nlm.nih.gov/36479889/>
13. Nicklaus Childrens Hospital. Salud dental en niños con parálisis cerebral. [Internet]. 2022 [citado 21/01/2023]; 2018. <https://www.nicklauschildrens.org/recursos-para-pacientes/informacion-de-salud/salud-dental-en-ninos-con-paralisis-cerebral>
14. Amador Lesbia RT, Madera M, Leal-Acosta CA. Salud bucal en sujetos con trastorno del espectro autista: consideraciones para la atención odontológica. CES odontol [Internet]. 2021 Dec [cited 01/10/2024]; 34(2): 139-158. Available from: [http://www.scielo.org.co/scielo.php?script=sci\\_arttext&pid=S0120-971X2021000200139&lng=en](http://www.scielo.org.co/scielo.php?script=sci_arttext&pid=S0120-971X2021000200139&lng=en).
15. Vázquez L, Hachity Ortega JA. Manejo estomatológico de pacientes con trastorno del espectro autista [Internet]. Odontología Actual; 2020 [cited 2022 Diciembre 22]. Available from: [https://www.odontologiaactual.com/blog\\_odontologia\\_actual/manejo-estomatologico-de-pacientes-con-trastorno-del-espectro-autis](https://www.odontologiaactual.com/blog_odontologia_actual/manejo-estomatologico-de-pacientes-con-trastorno-del-espectro-autis)
16. Herrera-Moncada M, Campos-Lara P, Hernández-Cabanillas JC, Bermeo-Escalona JR, Pozos-Guillén A, Pozos-Guillén F, et al. Autism and Paediatric Dentistry: A Scoping Review. Oral Health Prev Dent [Internet]. 2019 [cited 2024 Oct 07]; 17(3): 203-210. Disponible en: <https://pubmed.ncbi.nlm.nih.gov/31209442/>