

Autism Spectrum Disorder and oral health status: Impacts and perspectives for dental care

Transtorno do Espectro Autista e condição de saúde bucal: Impactos e perspectivas para atendimento odontológico

Trastorno del Espectro Autista y estado de salud bucal: Impactos y perspectivas para la atención odontológica

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Abstract

Autism Spectrum Disorder (ASD) is a group of neurodevelopmental disorders characterized by specific delays and deviations in social, communicative, and cognitive development. It is primarily defined by impairments in speech, social interactions, and repetitive behaviors. One of the daily activities affected by autism is oral hygiene, which is challenging due to sensory and behavioral alterations. The objective of this study was to review the literature on the most common oral health conditions in individuals with ASD and how these conditions influence dental treatment. An advanced search was conducted in the PubMed database using the Boolean operator "AND" and the keywords: "Autism Spectrum Disorder" and "oral health." As a result, 15 articles met the established eligibility criteria. Based on the findings, it can be concluded that individuals with ASD are more prone to poor oral health, primarily due to delays in seeking dental care. This delay is attributed to factors such as limited access to specialized professionals, caregivers prioritizing other health concerns over oral health, and the patients' lack of cooperation during dental visits. Consequently, individuals with ASD exhibit higher rates of cavities, gingivitis, and parafunctional habits, leading to the need for more extensive and invasive dental treatments, which may require sedation or general anesthesia—an expensive procedure associated with certain risks. Therefore, studies emphasize the importance of early dental care to mitigate these issues.

Keywords: Autism Spectrum Disorder; Dental Care; Disease Prevention.

Resumo

O Transtorno do Espectro Autista (TEA) é um grupo de transtornos do neurodesenvolvimento caracterizado por atrasos e desvios específicos no desenvolvimento social, comunicativo e cognitivo. É definido principalmente por prejuízos na fala, nas interações sociais e por comportamentos repetitivos. Uma das atividades diárias afetadas pelo autismo é a higiene bucal, que se torna desafiadora devido a alterações sensoriais e comportamentais. O objetivo deste estudo foi revisar a literatura sobre as condições de saúde bucal mais comuns em indivíduos com TEA e como essas condições

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influenciam o tratamento odontológico. Foi realizada uma busca avançada na base de dados PubMed utilizando o operador booleano "AND" e as palavras-chave: "Autism Spectrum Disorder" e "oral health". Como resultado, 15 artigos atenderam aos critérios de elegibilidade estabelecidos. Com base nos achados, pode-se concluir que indivíduos com TEA são mais propensos a apresentar pior saúde bucal, principalmente devido ao atraso na procura por atendimento odontológico. Esse atraso é atribuído a fatores como o acesso limitado a profissionais especializados, a priorização, por parte dos cuidadores, de outras condições de saúde em detrimento da saúde bucal, e a falta de cooperação dos pacientes durante as consultas odontológicas. Consequentemente, indivíduos com TEA apresentam maiores índices de cárie, gengivite e hábitos parafuncionais, o que leva à necessidade de tratamentos odontológicos mais extensos e invasivos, podendo exigir sedação ou anestesia geral — procedimentos de alto custo e associados a determinados riscos. Portanto, os estudos ressaltam a importância do atendimento odontológico precoce para minimizar esses problemas.

Palavras-chave: Transtorno do Espectro Autista; Atendimento Odontológico; Prevenção de Doenças.

Resumen

El Trastorno del Espectro Autista (TEA) es un grupo de trastornos del neurodesarrollo caracterizado por retrasos y desviaciones específicas en el desarrollo social, comunicativo y cognitivo. Se define principalmente por alteraciones en el habla, las interacciones sociales y la presencia de comportamientos repetitivos. Una de las actividades diarias afectadas por el autismo es la higiene bucal, la cual resulta desafiante debido a alteraciones sensoriales y conductuales. El objetivo de este estudio fue revisar la literatura sobre las condiciones de salud bucal más comunes en individuos con TEA y cómo estas influyen en el tratamiento odontológico. Se realizó una búsqueda avanzada en la base de datos PubMed utilizando el operador booleano "AND" y las palabras clave: "Autism Spectrum Disorder" y "oral health". Como resultado, 15 artículos cumplieron con los criterios de elegibilidad establecidos. Con base en los hallazgos, se puede concluir que las personas con TEA son más propensas a presentar una peor salud bucal, principalmente debido al retraso en la búsqueda de atención odontológica. Este retraso se atribuye a factores como el acceso limitado a profesionales especializados, la priorización por parte de los cuidadores de otros problemas de salud sobre la salud bucal y la falta de cooperación de los pacientes durante las consultas odontológicas. En consecuencia, las personas con TEA presentan mayores tasas de caries, gingivitis y hábitos parafuncionales, lo que conduce a la necesidad de tratamientos odontológicos más extensos e invasivos, que pueden requerir sedación o anestesia general, procedimientos costosos y asociados a ciertos riesgos. Por lo tanto, los estudios destacan la importancia de la atención odontológica temprana para mitigar estos problemas.

Palabras clave: Trastorno del Espectro Autista; Atención Odontológica; Prevención de Enfermedades.

1. Introduction

Autism Spectrum Disorder (ASD) is a group of neurodevelopmental disorders characterized by specific delays and deviations in social, communicative, and cognitive development, which cannot be categorized by a single trait. It is frequently characterized by impairments in speech, social interactions, and repetitive behaviors. Its etiology is associated with genetic and environmental factors, and treatment primarily consists of behavioral and pharmacological management (Hasell et al., 2022; Moorthy et al., 2022).

The prevalence of ASD is increasing worldwide and is often accompanied by other psychiatric conditions that can hinder proper diagnosis, such as attention deficit hyperactivity disorder (ADHD), communication disorders, attachment disorders, obsessive-compulsive disorder, and vision and hearing impairments. Furthermore, individuals with ASD, especially children, present sensory issues that can impact important daily activities such as eating, as they often prefer soft and sweet foods (Kuter & Uzel, 2021; Moorthy et al., 2022).

Another activity affected by ASD is oral hygiene, which becomes difficult to perform due to sensory and behavioral alterations, such as self-injurious habits, stereotyped movements, escape attempts, and difficulties in communication and interaction. This, associated with a high-sugar diet, leads to poor oral health. In addition to the difficulty family members and caregivers face in maintaining oral hygiene, professional dental care is also challenging, placing patients with ASD at a higher risk of developing cavities, periodontal disease, bruxism, and traumatic lesions (Gallo et al., 2023; Hasell et al., 2022).

The American Academy of Pediatric Dentistry recognizes that individuals with special healthcare needs are at an increased risk for developing gingivitis, periodontitis, enamel hypoplasia, dental caries, dental crowding, malocclusions, bruxism, and dental trauma. Vulnerable populations, such as those with ASD, face continuous barriers to obtaining adequate

access to dental care and are often disproportionately affected by oral health problems. Furthermore, studies have shown that populations living with one or more disabilities have more tooth loss and a higher prevalence of dental diseases compared to their non-disabled counterparts (Gallo et al., 2023; Hasell et al., 2022).

Given this, it is noted that patients with ASD present various behavioral factors that make them more susceptible to oral problems, highlighting the importance of professional care targeted at these patients. Based on the higher prevalence of oral conditions in this group, the objective of this study was to review the literature on the most common oral health conditions in individuals with ASD and how these conditions influence dental treatment.

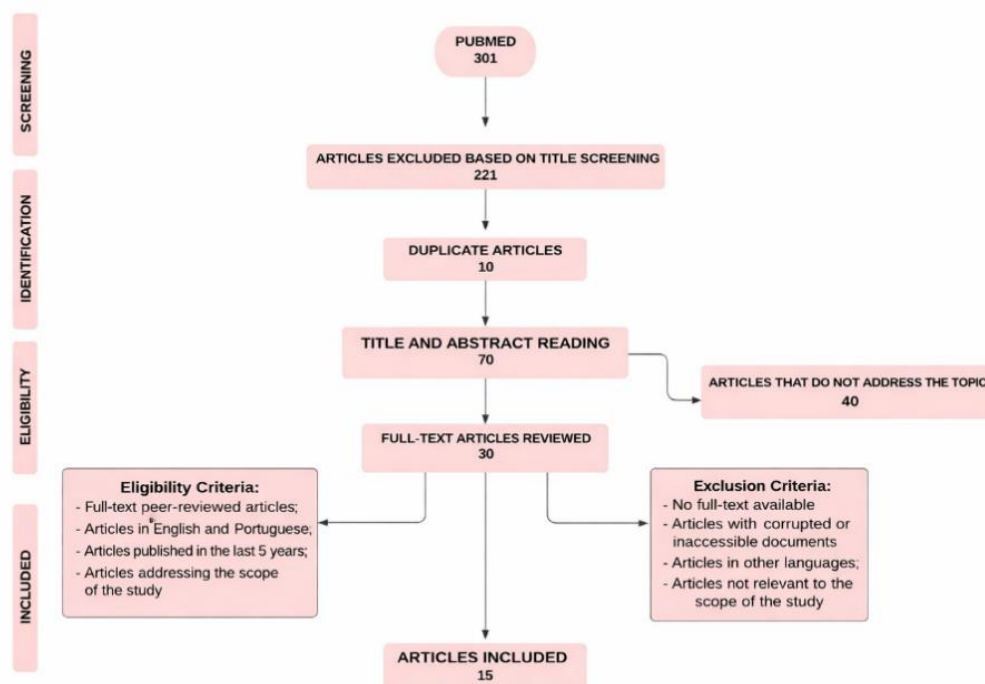
2. Methodology

A systematic integrative research study (Snyder, 2019) was conducted, employing a quantitative approach in terms of the number of 15 articles selected to comprise the *research corpus*, and a qualitative approach in terms of the discussions (Risemberg et al., 2026; Pereira et al., 2018).

A bibliographic survey was conducted through an online search of the PubMed database from January to February 2025, Figure 1 shows articles selection process. Descriptors were searched on the MeSH – Medical Subject Headings platform, and the following keywords were used in the search strategy: “autism spectrum disorder” and “Oral health.” The advanced search method was applied using the Boolean operator AND, establishing a 5-year selection period. Additionally, references from potential studies served as a guide for selecting new relevant articles.

Only articles meeting the following eligibility criteria were included: (i) full-text articles; (ii) articles written in English and Portuguese; and (iii) articles addressing the proposed theme of oral health status in patients with ASD and its impact on dental conduct. Articles were excluded if they: (i) did not present the full text; (ii) had corrupted and/or inaccessible documents; (iii) were in another language; or (iv) did not cover the addressed theme.

Figure 1 - Flowchart of article selection to compose the research corpus.



Source: Authors, adapted from PRISMA guideline, (2025).

3. Results

After an individualized analysis of the selected articles, two tables were developed to summarize and highlight the main findings. Table 1 presents comparative studies, primarily focusing on the oral health of individuals with ASD in comparison to neurotypical individuals (control group). In contrast, Table 2 includes review articles addressing the topic explored in this study.

Table 1 - Summary of selected comparative studies.

AUTHOR	YEAR	TYPE OF STUDY	SAMPLE	VARIABLE	RESULTS				CONCLUSION
					ASD FEMALE	ASD Control	TEA MALE	MALE CONTROL	
Kuter B; Uzel I.	2021	Retrospective study	ASD: 226 Control: 122						The results need to be confirmed in future research. These offer new insights into the oral health status and oral disorders in ASD patients in terms of gender. It is believed that the results may be useful for pediatric dentists, especially those working with ASD.
				dmft	1.16	2.87	1.17	2.66	
				DMFT	4.10	3.54	0.63	1.2	
				Presence of caries	77.77	84.21	57.40	57.14	
				Tooth wear	39.10%	9.5%	28.9%	0.0%	
				Drool	43.50%	9.5%	21.7%	3.6%	
			Palate ogival	50%	21.7%	60.7%	16.9%		
Hasell; Hussain A; Da Silva K.	2022	Retrospective study	ASD: 173 Control: 173		ASD	Control			This study found that children living with ASD have poorer oral health, particularly in the primary dentition, and may also be more frequently submitted to dental care under general anesthesia.
				Gingivitis	78%	65.9%			
				Chronic periodontitis	4.6%	6.4%			
				DMFT	91.8%	65.9%			
				Pulpitis	26%	13.3%			
				Bruxism	35.8%	10.4%			
	General anesthesia	76.3%	9.8%						
	2022	Case-control study	ASD: 136		ASD	Control		The study found that sugar exposure in the diet of children with ASD was similar to that of typically developing children, but 67.6% of children with	
				DMFT	1.1	0.9			
				dmft	3.8	3.3			

Moorthy L; Dixit U; Kole R; Gajre M			Control: 136	OHI-S	0.6	0.5	ASD had tooth decay. Despite the comparable caries experience, children with ASD had a higher prevalence of abnormal oral habits, such as bruxism and pica. Feeding-related behaviors, such as food selectivity and storing food in the mouth, were also more common in children with ASD, affecting their oral health.
				Presence of caries	67.6%	72.1%	
				Oral hygiene 2x or more daily	46.3%	26.5%	
				Oral hygiene once daily	71%	72.8%	
				No daily oral hygiene	1.5%	0.7%	
				Bruxism	31.6%	1.5%	
				Self-inflicted behaviors	14.7%	0%	
				Pica syndrome	22.1%	0.7%	
Gallo C; Scarpis A; Mucignat-Caretta C.	2023	Retrospective study	Pediatric ASD: 106 Adult ASD: 63		Pediatric ASD	Adult ASD	In conclusion, when working with ASD patients, the most important goal should be primary prevention to keep them free of oral diseases. Daily oral hygiene practices need to be internalized by the patient from an early age, taking advantage of these patients' tendency to repetition and continuity. They should get used to regular visits to the dentist and receiving simple preventive treatments, to avoid or intercept as early as possible any oral problems that may arise.
				Presence of caries	55%	31%	
				Biofilm accumulation	6%	18%	
				Gingivitis	2%	10%	
				General anesthesia	58.1%	66.7%	
Bagattoni S; Lardani L; D'Alessandro G; Piana G	2021	Case-control study	ASD: 64 Control: 64		ASD	Control	The results of the study suggest the need for more information, provided by pediatricians and dentists, on the importance of promoting oral health in children with ASD. Pediatricians should encourage parents to seek periodic dental care and reassure about the need and safety of topical fluoride.
				Plaque Index	1.48	0.81	
				dmft	3.00	1.8	
				DMFT	2.3	1.0	
				Bruxism	73%	39%	
				Use of fluoride toothpaste	14%	84%	
Dental trauma	54%	29%					

Author(s)	Year	Study Design	ASD Control	ASD Intervention	Control	Intervention	Notes	
					(Traditional visual resource)	(Culturally adapted visual resource)		
Aljubour A; Abdelbaki M; El Meligy O; Al Jabri B; Sabbagh H.	2022	Randomized controlled trial	ASD control: 44	ASD intervention: 32			Both culturally adapted dental visual aids and regular dental visual aids were effective in improving oral hygiene status in children with ASD	
					Plaque Index	37.55		27.45
					Oral Hygiene once daily	40.62%		40.62%
					Oral Hygiene twice a day	34.3%		25%
					Oral hygiene three times a day	0%		3.12%
		Assistance from caregivers	68.75%	46.87%				
Piraneh H; Gholami M; Sargeran K; Shamshiri A.	2023	A quasi-randomized controlled trial	ASD control: 58	ASD intervention: 79			The results indicated a greater improvement in oral hygiene in the educational video group compared to the group submitted only to the educational stories, which may be due to the greater effectiveness of video use in children with ASD.	
					OHI-S	1.98		1.85
					Oral hygiene 1x a day or more	58.6%		68.4%
					Oral hygiene less than 1x a day	41.4%		31.6%
Narula V; Goswami M; Juneja M; Kumar G.	2024	A cross-sectional study	ASD: 80	Control: 80			This cross-sectional study showed that repeated oral hygiene guidance during medical consultations of children with ASD significantly improved their oral health status than those without. The limitations of the present study include the evaluation of autistic children with adequate oral hygiene guidance in all medical consultations, resulting in contrasting results.	
					dmft	1.7		5.44
					DMFT	0.19		1.01
					Plaque Index	1.34		1.69

Source: Research data (2025).

Table 2 - Summary of selected revision articles.

Author	Year	Type of study	Objective	Conclusion
Ferrazzano G; Salerno C; Bravaccio C; Ingenito A; Sangianantoni G; Cantile T	2020	Literature review	To gather all the information available in the scientific literature in order to assess how the characteristics of ASD can impact oral health and quality of life in children with ASD.	The literature has shown that children with ASD may have a high risk of developing cavities, periodontal lesions, alteration of the oral microbiota and, due to their hyperactivity and their stereotyped and self-injurious attitudes, a higher probability of suffering oral trauma. However, all of these diseases can be, if not eliminated, reduced, thanks to individualized preventive approaches and a personalized educational model right for the ASD patient.
Gao L; Liu X	2022	Literature review	Promote a review of the current situation of oral care and dental treatment of patients with ASD, emphasizing on which factors oral health influences children with ASD and what are the means of offering effective treatment to this group.	A positive relationship is observed between the prevalence and severity of carious lesions and ASD. In addition, traumatic injuries, tooth extractions, and poor hygiene lead to a poor oral health status. Several techniques and methods for optimizing oral hygiene in patients with ASD have already been developed and deserve to be put into practice. Dentists, family members and schools must collaborate together to maintain adequate oral health for patients with ASD.
Sami W; Ahmad M; Shaik R; Miraj M; Ahmad S; Molla M	2024	An Umbrella Review	Compile and thoroughly evaluate existing literature in order to shed light on the oral health conditions of children and youth with ASD	The data analyzed emphasize the variations in the caries index dental and periodontal disease among people with ASD. This variation emphasizes the interactions between factors such as age, behavioral traits, and oral hygiene practices in this population. The results of this review highlight the urgent need for evidence-based regulation-driven interventions in order to address the increased number of oral conditions seen in people with ASD.
Lam P; Du R; Peng S; McGrath C; Yiu C	2020	Systematic review of case-control studies and meta-analysis	To summarize existing evidence to compare oral health status among children and adolescents diagnosed with ASD	This review identified significantly higher prevalences of bruxism and lower resting salivary pH in children and adolescents diagnosed with ASD compared to those with non-ASD. There was no significant difference in terms of prevalence and severity of caries, oral hygiene and periodontal status, prevalence of malocclusion, traumatic dental lesions, such as salivary flow and buffering capacity between those diagnosed with ASD and without ASD.
Asiri F; Tennant M; Kruger E	2024	Systematic review and meta-analysis	To examine the existing literature on the effects of ASD on oral health status in Saudi Arabia. By synthesizing the available evidence, this review provides insight into the oral health needs of individuals with ASD in Saudi Arabia and may aid in identifying areas for future research and interventions.	It has been found that in Saudi Arabia, children with ASD generally have worse oral health status than their neurotypical peers. However, due to insufficient numbers of comparative studies, oral health status among children with versus without ASD remains unknown.

<p>Uliana J; Del' Agnese C; Antoniazzi R; Kantorski K</p>	<p>2024</p>	<p>Systematic review and meta-analysis of observational studies</p>	<p>To compare dental caries, oral hygiene, periodontal disease, bruxism, malocclusion, tooth loss and salivary alterations between autistic and typically developing individuals.</p>	<p>Autistic individuals were more likely to have poor OH, gingivitis, crossbite, open bite, overbite, overjet, and bruxism when compared to neurotypical controls. The severity of dental plaque was significantly higher in individuals with ASD, as was the severity of dental caries in primary teeth. No difference was observed in relation to salivary flow rate between the groups, but individuals with ASD had lower salivary pH</p>
<p>Salmeh A; Al-Saadi M; AlZaidi N; Al Hamwi N; Jumaah S; Karimzadeh S; Dhafer T; Al-Rubaiay W; Al-Rawi N</p>	<p>2023</p>	<p>Systematic review</p>	<p>To analyze the current evidence around the influence of parental knowledge and attitudes on the health status of autistic children.</p>	<p>It can be noted that all experimental studies included in this review demonstrated improvements in the oral health of autistic children after the implementation of family education programs. Therefore, it is recommended that well-controlled experimental research be conducted in the future to establish a more conclusive causal relationship and special attention should be given to the importance of implementing oral health education appropriate to the needs of both autistic children and their caregivers.</p>

Source: Research data (2025).

4. Discussion

ASD is a complex, lifelong developmental disorder whose prevalence has increased over the last 50 years. Knowledge about ASD has grown exponentially; however, scientific findings regarding the severity of oral diseases and the dental treatment needs of autistic individuals remain conflicting (George et al., 2024; Hasell et al., 2022).

Comparative studies observe that most patients with ASD tend to brush their teeth less frequently, have a higher incidence and severity of cavities and gingivitis, present greater treatment needs, are more prone to bruxism, and are more likely to be referred for dental care under general anesthesia (Bagattoni et al., 2021; Hasell et al., 2022).

Generally, a higher incidence of cavities is associated with a concomitant decrease in saliva or its buffering capacity. However, research concludes that patients with ASD do not have alterations in salivary flow or quality; therefore, cavity scores may result from decreased brushing frequency, advanced age at the first dental visit, longer intervals between appointments, preference for sweet, soft, and sticky foods, or increased food retention time in the mouth (Hasell et al., 2022; Sami et al., 2024).

The importance of early dental appointments and their relationship with disease status is well-documented, as they are intended for risk assessment and prevention. Dentist visits during the primary dentition phase result in fewer treatment needs. Individuals with ASD tend to visit the dentist for the first time at an older age, as observed in the study by Hasell et al. (2022). This is believed to occur due to caregivers' lack of understanding of when to first visit the dentist. Additionally, guardians may focus more on other health and behavioral issues than on oral health. Furthermore, patient anxiety regarding the dental environment, barriers to access (such as cost and transport), or the absence of trained professionals to handle people with special needs also contribute to this deficiency in dental assistance (Hasell et al., 2022; Lam et al., 2020).

Many individuals with ASD may need help brushing their teeth or closer supervision due to limited manual dexterity, sensory issues, or an inability to focus on the task. This requires higher levels of attention to oral health, which, although highly relevant, is not always the focus for many of these patients and their caregivers. Beyond a higher incidence of oral infections, literature also shows that patients with ASD have more parafunctional habits, such as bruxism, Pica syndrome, lip biting, and mouth breathing. Due to these oral habits, they may be more prone to malocclusions (Asiri et al., 2024; Hasell et al., 2022).

Authors such as Hasell et al. (2022), Gallo et al. (2023), and Bagattoni et al. (2021) discuss that patients diagnosed with ASD are more likely to be referred for treatment under general anesthesia. Regarding their oral health, these patients presented a higher prevalence of cavities, generally required more extensive treatment, and, on average, presented challenging behavioral management—these being the indications for using general anesthesia. Because of this, autism is one of the most cited reasons for requesting general anesthesia in dentistry. However, it is a costly procedure associated with health risks (Bagattoni et al., 2021; Gallo et al., 2023; Hasell et al., 2022).

Despite complications related to dental procedures under general anesthesia in patients with autism being generally similar to those in any individual, specific adverse events related to ASD may occur, such as significant disruptive behaviors upon awakening or post-operative bleeding due to the patient manipulating surgical sites. Even when resorting to general anesthesia, it is mandatory to personalize the approach, including a flexible admission procedure, minimum preoperative waiting time, and a quiet room for pre- and post-operative care to minimize the risk of negative reactions and adverse effects (Ferrazzano et al., 2020; Gallo et al., 2023).

It should be highlighted that the oral health status of autistic patients depends primarily on behavioral factors; in this sense, caregivers have an important responsibility in helping these patients overcome challenges in maintaining adequate oral health. As an example, the study by Moorthy et al. (2022) observed that children with ASD had better oral hygiene practice scores compared to controls. These findings may be attributed to the significantly higher educational level of the mothers of

children in the ASD group. A positive correlation between maternal education and the child's oral hygiene practices has been demonstrated in several studies (Gao & Liu, 2022; Moorthy et al., 2022; Salmeh et al., 2023).

Despite showing a higher daily frequency of oral hygiene, children with ASD in the study in question presented a significantly worse oral hygiene status, with higher DMFT and dmft indices. This finding can be attributed to the compromised effectiveness of oral hygiene in people with ASD due to a lack of cooperation, increased difficulty, and gagging during brushing, as reported by guardians (Moorthy et al., 2022; Narula et al., 2024).

It is also known that patients with ASD present food selectivity, which considerably restricts the variety of foods they accept. Added to this, behavioral changes and management difficulties often lead to the establishment of reward mechanisms using high-sugar foods by family members, further contributing to a higher incidence of cavities (Moorthy et al., 2022).

Furthermore, for the reasons discussed, families of patients diagnosed with ASD tend to underestimate or delay dental care. Several studies support the view that delayed dental care triggers more oppositional behavior, as older patients presented a more negative attitude, leading to more frequent general anesthesia than in non-autistic patients. The role of family physicians and dentists is essential in emphasizing oral health importance and prevention, referring patients to specialists for periodic visits to familiarize them with the environment and reduce oral disease incidence. Since individuals with ASD tend to have medical and behavioral issues that can hinder dental treatments, understanding the effect of autism on their behavior helps the dentist provide empathetic and appropriate care (Aljubour et al., 2022; Gallo et al., 2023).

Individuals with ASD are often challenging due to their inability to cooperate, resulting from interaction and communication difficulties. Different behavioral management techniques can be used to gain trust and cooperation. The true challenge is finding the right approach and techniques for each patient, due to the extreme variability of ASD manifestations, different levels of physical and cognitive impairment, and varying behavioral patterns (Gallo et al., 2023).

Notably, the so-called "problematic" behaviors presented by patients with ASD can be a way of communicating feelings or needs when they cannot express themselves otherwise. One should not inhibit the other's communication; rather, it is possible to teach alternative forms of communication through behavioral management techniques such as "tell-show-do," modeling, and positive reinforcement. These techniques should be used not only by the dentist but also synergistically at home and in other locations frequented by the patient to obtain better and consistent results (Gallo et al., 2023; Piraneh et al., 2023).

Therefore, greater emphasis on prevention is necessary from both professionals and caregivers, as patients with ASD may not be cooperative in the dental chair and may not be able to effectively communicate their oral complaints. These issues further highlight the need for routine dental appointments focused on early diagnosis, prevention, and maintenance to minimize the need for treatment under general anesthesia. Poor oral health compromises quality of life and can contribute to systemic diseases. Therefore, regular and timely dentist visits are of utmost importance in populations with any medical impairment (Hasell et al., 2022).

5. Conclusion

The oral health of patients with ASD faces significant challenges due to behavioral, sensory, and access barriers to specialized dental care. Lower brushing frequency, selective dietary habits, and difficulties in dental management contribute to a higher incidence of dental caries, gingivitis, and other oral disorders. Furthermore, delays in the first dental visit and lack of cooperation often necessitate more invasive treatments that may require general anesthesia, a costly procedure that carries inherent risks. Consequently, early assessment by a trained professional is essential to prevent oral lesions and minimize disease progression, thereby reducing the need for complex interventions. Preventive strategies, regular follow-ups, and appropriate behavioral management techniques are fundamental to ensuring a better quality of life for these patients.

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