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Saúde Bucal de Indivíduos com Transtorno do Espectro Autista

Oral Health of Individuals with Autistic Spectrum Disorder

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Resumo

Transtorno do Espectro Autista (TEA) é um espectro de transtornos do desenvolvimento neurológico que afeta o desenvolvimento e funcionamento do cérebro, por mecanismos ainda desconhecidos. A prevalência estimada para TEA é de um a dois para cada mil nascidos vivos e estes indivíduos apresentam limitações físicas e psicológicas que incluem atrasos no desenvolvimento da linguagem, dificuldades de comunicação e interação social, comportamentos restritos e repetitivos e muitos podem ter deficiência intelectual. Supõe-se que a saúde bucal de indivíduos com TEA é precária, em parte por suas limitações e pouca destreza manual para realização de cuidados em saúde, bem como pelo maior consumo de alimentos com adição de açúcar e retenção prolongada do bolo alimentar na cavidade bucal, que são observados nesta população. O objetivo deste artigo é apresentar uma revisão da literatura sobre as condições de saúde bucal de indivíduos autistas. Para o desenvolvimento da presente revisão de literatura foram realizadas buscas nas bases de dados MedLine/PubMed, Scopus e SciELO. Os artigos foram selecionados segundo descritores relacionados com saúde bucal e transtorno do espectro autista. Menor prevalência de cárie em indivíduos com TEA é relatada na maioria dos estudos, porém, observa-se a necessidade de estudos longitudinais que possam avaliar incidência e fatores associados com cárie dentária nesta população. Estudos sugerem que indivíduos autistas tenham pior condição periodontal, havendo uma lacuna sobre as condições associadas a essa maior prevalência. Embora com um número limitado de estudos, indivíduos autistas parecem não serem mais propensos a traumatismos dentários.
Palavras-chave: Transtorno do Espectro Autista. Cárie Dentária. Doenças Periodontais; Traumatismos Dentários.

Abstract

Autism Spectrum Disorder (ASD) is a spectrum of neurodevelopmental disorders that affect the brain development and functioning, by still unknown mechanisms. The estimated prevalence for ASD is one to two per thousand live births and these individuals present physical and psychological limitations that include delays in language development, difficulties in social interaction, communication and restricted and repetitive behaviors, and many may have intellectual disabilities. It is assumed that the oral health of ASD individuals is precarious, in part because of their limitations and little manual dexterity to perform health care, as well as the high consumption of foods with added sugar and prolonged retention of the food bolus in the oral cavity, which are observed in this population. The aim of this article is to present a review of the literature about the oral health conditions of autistic individuals. For the development of the present literature review, the MedLine / PubMed, Scopus and SciELO databases were searched. The articles were selected according to descriptors related to oral health and autism spectrum disorder. Lower caries prevalence in ASD individuals is reported in most of the studies, however, it is observed the need for longitudinal studies that can assess incidence and factors associated with dental caries in this population. Studies suggest that autistic individuals have worse periodontal conditions, and there is a lack of conditions associated with this higher prevalence. Despite the limited number of studies, autistic individuals do not appear to be more prone to dental trauma.

Keywords: *Autism Spectrum Disorder. Dental Caries. Periodontal Diseases. Tooth Injuries.*

1 Introduction

Autistic Spectrum Disorder - ASD is a spectrum of disorders of neurological development, which includes the autistic disorder, Asperger's syndrome and pervasive development disorder not otherwise specified[1]. ASD affects many parts of the brain, however, how this occurs is not understood[2]. Autistic individuals have significant delays in the language development, difficulties in communication and social interaction, restricted and repetitive behaviors and many may have intellectual disabilities[1-4]. These symptoms are observed until the age of three years and shall remain throughout life, and there may be a regression of the severity with the increase of age and increase of educational activities[4.5].

The estimated prevalence for autism is 1 to 2/1000 live births and affects approximately 3 to 4 times more men than women[3,6,7]. It is proposed that among the etiological factors are postnatal infection or sepsis, autoimmune and genetic factors and vitamin D deficiency. Family income, level of education and life style does not seem to affect the risk of autism[4.5].

It is supposed that the oral hygiene of ASD children is affected due to their communication difficulties, reduced cognitive functioning, little manual dexterity and extreme sensitivity to noise and jerky movements, which can lead to poor oral hygiene, gingivitis and/or periodontal problems[3.7]. Allied to this, children with autism in general, prefer soft and sweetened foods, and tend to keep the food boli inside

the mouth, instead of swallowing, due to the inadequate functioning of the tongue, thereby increasing the susceptibility to caries[4].

On the other hand, the dental services for ASD children may be restricted due to a lack of knowledge and experiences about the condition, in addition to a work environment that is restricted due to inadequate financial resources, facilities and insufficient time, leading to a limitation on access to care for these individuals[1,3]. In the face of the scarce scientific publications about the oral health conditions of the population and the need for scientific basis for inclusive measures to be drawn up, the objective of this work was to review the literature on the oral health conditions of individuals with autism spectrum disorder.

2 Development

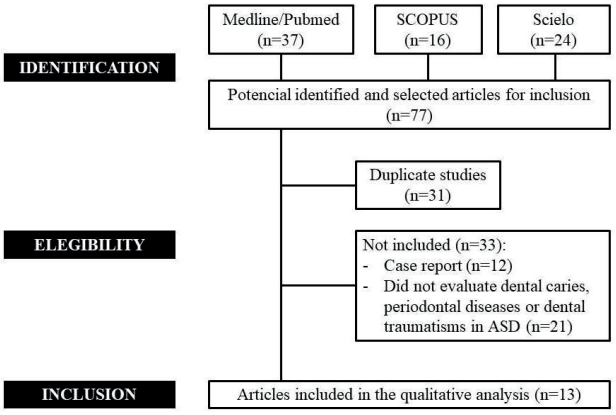
2.1 Methodology

The bibliographic research was operationalized through electronic search of articles indexed in MEDLINE/PubMed, Scopus and SciELO, from keywords related to oral health conditions of autistic individuals.

The consultations obeyed the following criteria inclusion criteria: Articles published in indexed journals, in full in English language, In the period between 2007 and 2017, related to Dentistry, involving cross-sectional and longitudinal studies and that had relevance to the topic, having as a guiding criterion the prevalence and/or incidence of dental caries, periodontal diseases and dental trauma in autistic individuals.

First articles were checked from the intersection of the following descriptors: *oral health, dental trauma, dental caries, periodontal diseases, autism spectrum disorder and autistic disorder.* From this search and complying with the inclusion criteria a total of 13 articles were obtained, and in possession of full texts, analytical reading was performed with summary of its main results.

Figure 1 - Flow diagram of manuscripts included in the review process



Source: The authors.

2.2 Autism and dental caries

Namal *et al.*[8] carried out one of the first studies about oral health conditions and habits of individuals with ASD. In a cross-sectional study involving 62 children with Autistic Spectrum Disorder (ASD) and 301 non-autistic children, in Istanbul, Turkey was rated the experience of caries. The group was evaluated in the age range from 7 to 12 years. ASD children presented DMFT index lower than the non-autistic children (1.74 X 2.41; p=0.028), although e the majority of autistic children had already had experience of caries (58.1% vs. 41.9%).

Similar results were found by Vajawat and Deepika[4] who upon assessing oral health conditions and periodontal condition of 117 autistic individuals aged 5 to 22 years and a control group with 126 individuals found a mean DMFT in autistic patients of 1.29 and 3.73 in the control group (p<0.001).

When carrying out a prospective study on the oral health conditions in a group of 30 autistic adults, *Orellana et al.*[6] observed that 60% of the individuals presented carious lesions. The DMFT index for the 30 patients was 3.7, with values of 1.33 and 1.37, 1 for decayed teeth, missing and filled teeth, respectively. The non-autistic individuals showed higher DMFT index significantly higher than the autistic patients (p=0,032).

In 2015, Du *et al.*[1] conducted a community-based oral health survey involving children with and without ASD, in Hong Kong. With a calculated sample taking as a basis the average experience of caries observed in a study of Altun *et al.*[9] and considering the difficulty being able to examine some of these individuals, the sample was estimated in 500 children, of whom 347 participated with the parents' consent and 257 were able to cooperate with a comprehensive clinical examination. It was observed that ASD children had less caries experience than children without ASD, with ceo-s lower (p <0.05). Among the ASD children, 37% (95/257) had experience of dental caries (ceos> 0) and 35.4% (91/257) had untreated carious lesions.

Convergent with these results, Fakroon *et al.*[5] observed in their study that autistic children had significantly lower averages for the numbers of decayed, missing and filled teeth, as well as for the total score of the DMFT index (p = 0.001; 0.011; 0.041 and 0.001, respectively).

Comparing the results of the studies mentioned above, Jaber[2] analyzed the oral health conditions and treatment needs of 61 autistic children, in the United Arab Emirates, aged 6-16 years and their controls, in the same number. The mean DMFT of autistic group was 0.80 ± 0.20, while the control group was 0.30 ± 0.3. The mean ceo-d of the autistic group was 1.6 ± 0.64 and 0.6 ± 0.29 in controls (p <0.05).

Richa *et al.*[10] recruited 135 children with autism and 135 healthy children, ranging in age from 4 to 15 years and assessed their oral health conditions using the Simplified Oral Hygiene Index (OHI-S) and DMFT indexes, ceo-d, DMF-S and ceo-s, noting that the DMFT index, and DMFT were

significantly higher among children with autism (0.86 ± 1.22, 1.40 ± 2.48, 0.9 ± 1.33, 2.65 ± 6.32) in comparison with the control group (0.46 ± 1.06, 0.59 ± 1.28, 0.59 ± 1.40, 1.13 ± 2.81, respectively).

Aiming at evaluating the propensity to the development of oral diseases in autistic patients from the USA, Zablotsky *et al.*[3] used data from the National Survey of children's health, in 2007, that is a population-based survey that involved interviews with parents of families with children under 18 years of age in all 50 states and the District of Columbia, restricting the sample to the age range from 3 to 17 years, which included 1412 individuals and observed that autistic individuals were more likely to present decayed teeth.

Bassoukou *et al.*[11]conducted a study that evaluated 25 autistic individuals, all male, aged between 3 to 13 years, compared with a control group paired by age and gender did not find statistically significant differences among the groups DMFT index. Similar result was observed by El Khatib *et al.*[7], who analyzed, by means of a transversal study, 200 children with and without ASD in the same number, ranging in age from 3 to 13 years, in Alexandria, Egypt and they did not find significant differences in the prevalence of dental caries among children with ASD and healthy children in the deciduous, mixed and permanent dentition (P = 0.44, 0.31, 0.83, and 0.31, respectively).

2.3 Oral hygiene and periodontal health in autistic individuals

El Khatib *et al.*[7] performed a cross-sectional study in which 200 ASD children w and a control group in the same number, ranging in age from 3 to 13 years, were examined in Alexandria, Egypt. The examination included evaluation of the child's behavior through the behavioral scale of Frankl; Extraoral examination, investigating possible traumatic injuries and intraoral examination, to assess conditions of oral hygiene, gingival condition, and prevalence of caries experience, bruxism and oral lesions. The mean values of plaque ($p<0.01$) and gingivitis ($p<0.01$) measured in autistic children were significantly higher when compared to non-autistic children

Pointing to a consensus in the literature about a worse periodontal condition in autistic patients, Jaber[2] observed in a study involving autistic individuals and non-autistic patients ranging in age from 6 to 16 years the majority of autistic children had poor oral hygiene 59.0% (36/61) and on the evaluation of gingival status results showed that 97.0% (59/61) of the autistic children had gingivitis, being generalized in 78.0% of the children examined and located in 22.0% of cases.

Vajawat and Deepika[4] assessed 117 autistic individuals aged 5 to 22 years and a control group with 126 individuals found that the prevalence of periodontal disease was significantly higher in autistic patients ($p<0.001$) and a greater number of autistic patients needed professional scraping and root planing ($p<0.001$). Whereas Orellana et al. when evaluating 30 autistic adults, aged between 20 and 41 years, observed that the amount of plaque was significantly higher in the group of autistic patients than in controls without ASD ($p<0,001$).

Zablotsky *et al.*[3] assessed the propensity to the oral diseases development in a robust group of autistic patients and observed that autistic individuals were more likely to have gingival bleeding in comparison with non-autistic individuals.

Fakroon *et al.*[5] performed a cross-sectional comparative study in which the need for periodontal treatment of Lebanese children with ASD were compared with healthy controls, included 50 children (40 males and 10 females) with ages between 3 and 14 years of age. Other 50 non-diagnosed children with ASD and healthy acted as controls matched by age, sex and socioeconomic level. It was observed that the children in the control group showed less need for periodontal treatment; 41.8% of them, without signs of periodontal disease (P = 0.001). More than half of autistic children needed professional follow-up and the number of autistic children who had signs of gingival inflammation was 21 (38.2%), almost twice that of the control group.

Du *et al.*[1] performed a Community-based oral health survey involving 257 children with ASD in Hong Kong and concluded that compared with children without ASD, children with ASD had a lower rate of plate ($p <0.001$), fewer surfaces with plaque accumulation ($p <0.001$), lower average gingival index ($p <0.001$) and fewer sites with gingival inflammation/ gingivitis ($P <0.001$).

2.4 Dental Trauma in autistic individuals

Altun *et al.*[9] performed a cross-sectional study with 186 Turkish individuals, age range from 4 to 23 years with the objective to evaluate the traumatic dental injuries involving the maxillary and mandibular incisors. A group composed of 93 individuals diagnosed with ASD and a control group, composed by 93 healthy individuals participated in the study. Autistic individuals showed more dental injuries (23%) than the control group (15%). However, the difference between the groups was not statistically significant ($p=0.19$). Male individuals suffered more traumatic injuries than women,however, the difference between sexes was not statistically significant.

Andrade *et al.*[12] through a review of patients medical records followed up in a specialized center in care for patients with special needs, selected 114 records of autistic patients and the same number of records of healthy patients, obtained in the archives of the infant dental clinic of a public university. The prevalence obtained from dental injuries in autistic patients was lower than in the control group ($p=0,007$), and a statistically significant association was observed between dental trauma and males ($p=0.001$).

Habibie *et al.*[13] carried out a case-control study with 122 children and adolescents aged 4 to 17 years, with 61 of

those composing the study group, due to being individuals with Autistic Spectrum Disorder and 61 forming the control group. Clinical examination was performed and dental history obtained to investigate risk factors for dental trauma in these individuals. The autistic individuals showed a higher percentage of injuries during routine activities (p = 0.003), falling when walking and episodes of injury (p = 0.007) in the own individuals' residence (p=0.036). On the prevalence of traumatic injuries, there was no statistically significant difference (p=0.123) between the groups. In the ASD group, the girls had more lesions than THE boys, 50.0% (6/12) and 36.7% (18/49), respectively. However, in the control group, the opposite was observed, with boys having suffered more injuries than girls, 30.6% (15/49) and 8.3% (1/12), respectively. Comparison between autistic girls and the control group showed a statistically significant difference (p=0.024), with ASD girls presenting a higher percentage of dental injuries. Enamel fracture was the most frequent type of traumatic injury in both groups, followed of fracture in enamel/dentin, intrusive luxation and avulsion. On the dental treatment after a dental trauma, there was no difference between ASD individuals and control group, with the majority of individuals not having received any treatment (ASD 22/24 = 91.7%; GC 13/16 = 81.3%; p = 0.373).

3 Conclusion

Lower caries prevalence in ASD individuals is reported in most of the studies, however, longitudinal studies are necessary so that they can assess incidence and associated factors. Studies suggest that autistic individuals have worse periodontal conditions, and there is a lack of conditions associated with this higher prevalence. Despite the limited number of studies, autistic individuals do not appear to be more prone to dental trauma.

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