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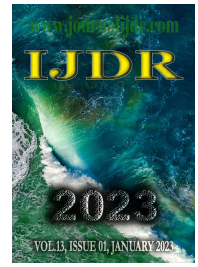
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RESEARCH ARTICLE

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PREVALENCE OF DENTAL CARIES IN PEOPLE WITH DOWN SYNDROME INSTITUTIONALIZED IN APFE

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ABSTRACT

The objective of the study was to determine the prevalence of dental caries in people with Down Syndrome compared to non-syndromic individuals. This is an observational, analytical cross-sectional study with a sample composed of 42 people, including 21 individuals with Down Syndrome and 21 non-syndromic individuals, both groups with children and teenagers aged between 6 to 17 enrolled in schools of southern Brazil. It was found that approximately half of the participants had no dental caries in both groups. Regarding the prevalence of dental caries, there was no significant difference in the CPO-D and ceo-d scores of people with Down Syndrome, when compared with non-syndromic individuals. Dental caries is a disease present in the Brazilian population and the results found should serve as a basis for the elaboration of preventive programs, treatments and health education strategies with an emphasis on combating dental caries, directed at the entire population.

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INTRODUCTION

Dental caries is the infectious disease that most affects the oral cavity, being considered a problem of public health worldwide, has a high prevalence in many countries and its infectious nature can bring damage to the oral cavity and sometimes systemic as phonetic level problems, decrease in self-esteem, poor occlusion of permanent teeth and may cause a progressive decrease in the person's weight (FEIJÓ & IWASAKI, 2018; MESSIAS *et al.*, 2011). In the literature, the prevalence of dental caries is associated to socioeconomic and cultural factors of the population, to the social context that each individual is inserted (AREIAS *et al.*, 2011; CASTILHO & NADER, 2010). Down Syndrome (DS) is a very common chromosomal disorder in the world population, in approximate numbers its incidence is from 1 to 600-800 births. People with this syndrome usually have deficiencies, physiological disharmonies and developmental delay compared to individuals without trisomy

(NACAMURA, 2015; SOUZA & MAGDALENA, 2016). The dental eruption of DS is usually late, presents complete dental mineralization, many of them have bruxism or some kind of occlusal disharmony, mouth breathing, macroglossia, fissured tongue, reduced palate and lingual protrusion.⁸ The fact that it has a late eruption causes the deciduous dentition to remain for a long period in the dental arches of people with Down Syndrome, a condition that contributes to the fact that these remained teeth can be exposed to factors that can trigger dental caries (AREIAS *et al.*, 2011). According to studies conducted in Brazil in 2009 and 2015, about 80% of people with DS present muscular hypotonia, making it difficult to perform the movements made at the time of oral hygiene. Neurological and motor deficiency can impair the dental hygiene of the individual with DS, which can lead to periodontal problems and dental caries lesions (ENSSLIN, *et al.*, 2009; NACAMURA, 2015). There are weaknesses in aspects that involve the integrality of care, the availability of sectors and some health care services

(CARVALHO, *et al.*, 2018). When it comes to people with Down Syndrome, its legal protection is provided in Brazilian Law no. 13,146/2015, the Statute of the Person with Disabilities (SPD), a text that, in its first caput article, brings, as a function of legislation, promotion of rights, freedoms and social inclusion, being the right to health of constitutional order according to clause 196 of the Federal Constitution of 1988 (Brazil, 2015, 2019). In this way, the SPD contemplates in its legal text, clause 17, that the services provided by the UHS, should promote articulated actions for the disabled person and his/her family in order to guide and promote full social participation in health programs (Brazil, 2015). When analyzing Law no. 8,080/ 90, UHS Law, it is envisaged that its principles (clause 7) contemplate the universality of access to health, preservation of people's autonomy in defense of their physical and moral integrity; community participation and integral care (Brazil, 1990). Regarding to accessibility in the Unified Health System (UHS), despite Law No. 8,080, of September 19, 1990 that ensures all citizens to receive care, there is still a lot of improvement to do, so that people with disabilities receive universal, equitable and equal care (Brazil, 1990; FRANÇA & PAGLIUCA, 2008). The main difficulty found in the dental area regarding the care of people with disabilities is directly related to the fact that many colleges do not promote or provide care for this group of patients (MESSIAS *et al.*, 2011). The lack of technical training of many dentists, in the face of the disabled patient, both in the public service and in the private sector, makes it difficult to orient these patients regarding the maintenance of oral health and assistance in the performance of oral hygiene (ANDRADE & LIMA, 2016). The purpose of this study is to know the oral health condition of this group of patients in relation to dental caries, and to perform a comparison with non-syndromic individuals, whose groups are similar in age to the groups of patients with DS, have a similar socioeconomic index and the same access to the dentist.

METHODOLOGY

This is an observational, analytical cross-sectional study. The sample consisted of 42 individuals divided into two distinct groups. The first group was composed of 21 individuals between 6 and 17 years old with Down Syndrome (DS) from a population of south Brazil enrolled in the Association of Parents and Friends of the Exceptional (APFE). This number corresponds to 70% of individuals with DS with less than 18 years old enrolled in the APFE. The second group evaluated 21 non-syndromic students aged between 6 to 17 years old enrolled in a school, also located in south Brazil. Both groups receive dental care. The study was carried out with two institutions that have students with similar socioeconomic levels, avoiding distorted results in relation to this determinant. The method to analyze the prevalence of dental caries in patients was the CPO-D and ceo-d indexes. The CPO-D measures the prevalence of dental caries in the permanent dentition, letter C referring to the decayed teeth, the P to the missing teeth, the O to the filled teeth and the unit measure that is the tooth (D). The ceo-d corresponds to the deciduous dentition, where the decayed teeth are represented by the letter "c", extracted are indicated by the letter "e" and those filled by the letter "o". The clinical evaluations were performed through visual examination, using natural and artificial light, disposable wooden spatula, in unoccupied rooms of the institutions. The intra-buccal examination was performed by the researcher, with an auxiliary to record the data. In order to the examiner and assistant to be familiar with the codes used, a four-day calibration was performed, with two days reserved for theoretical classes and the other two days for calibration in the patients. The SB Brazil Project - Oral Health Conditions of the Brazilian Population of the year 2010 was used as reference. Six students from the first year of elementary school were invited to participate in the calibration of the research. Personal protective equipment (PPE), lab coat, mask, goggles, cap, disposable gloves, and disposable wooden spatula were used. In order to avoid possible contaminations, only the auxiliary used pen, pencil and rubber (Brazil, 2010). To verify the agreement coefficient of the evaluations made in the calibration students, the Kappa test was used. This test deducts from the final result the agreement made at random and has a variation of minus 01 and over

01. The values found in the Kappa index were considered from great to perfect agreement, ranging from 0.81 to 0.99 for prevalence of dental caries (OMS, 1999). Clinical examinations were performed on 42 individuals by a single examiner previously calibrated twice. The objective of the clinical examination was to obtain the CPO-D and ceo-d indexes, to verify the presence or absence of dental caries. No recommendations regarding diet and hygiene were given prior to the initial examination; assessments were made before snack time of student institutions to facilitate the examination. The dental conditions were recorded on individual sheets by the assistant. The data obtained through the intra-buccal physical examination were entered in the Windows Excel program with the purpose of comparing the two groups. Subsequently, a total count of the CPO-D and ceo-d numbers of participants was performed. The data were compared through the total CPO-D and ceo-d values of each group.

RESULTS

At the end of the calculation of the both groups, it was observed that in the group of people with Down Syndrome (group 1), 9 people (42.85%) were caries-free and in non-syndromic individuals (group 2), this number increased to 11 (52.38%). The prevalence of dental caries was measured through the application of CPO-D and ceo-d indexes. In the deciduous dentition, group 1 had a ceo-d of 1.95, group 2 had a lower prevalence of dental caries than group 1, and ceo-d of 1.57 per person. In the permanent dentition the situation reversed, group 1 had an average CPO-D value of 0.42, as opposed to group 2 with CPO-D mean of 0.76 per person.

DISCUSSION

In the studied population, 9 (42.85%) were the number of caries-free DS individuals, higher than the 90% proposed by the WHO for 2010, and the proposed target for 2020 that recommends totally caries-free children born from the year 2015 (Brazil, 2010). A study published in 2011 in Portugal that evaluated a similar number of participants found similar results, where 42% of the 24 individuals with Down Syndrome examined were caries-free (AREIAS *et al.*, 2011). Another study conducted in Cartagena, Colombia, with 38 individuals with Down Syndrome, aged between 3 to 28 years old, found a ceo-d with a mean of 1.16, similar to the present study, where the participants of group 1 (with DS) had a ceo-d mean of 1.95. However, the CPO-D had a significant difference between the two surveys, where Moraes study obtained a CPO-D result of 2.68 and we obtained a CPO-D of 0.42 (LESBIA, *et al.*, 2015). Two groups were analyzed in a survey conducted in Araçatuba-SP and São José do Rio Preto-SP, in 2011, the first group consisting of 40 children and teenagers with Down Syndrome and the second group with the same number of people, between 6 and 18 years old. At the end of the data analysis, it was found that the syndromic group presented a prevalence of dental caries in the deciduous dentition lower than the non-syndromic group, but a higher prevalence in the permanent dentition, with an opposite result to this present study (MESSIAS *et al.*, 2011). In a study conducted in Kelantan, Malaysia, with 63 children with Down Syndrome, a low prevalence of dental caries was found in the deciduous dentition, but a higher prevalence of dental caries in permanent teeth was found, compared to the results of non-syndromic individuals (NORMASTURA, 2013). In the present study, a lower prevalence of dental caries was found in the permanent dentition than in the deciduous dentition of the DS individuals, when compared to the non-syndromic individuals. In a survey conducted in Yemen, 2014, data were significant: 93.8% of the 96 DS individuals examined had dental caries (Maweri&Sufyani, 2014). The result was opposite for most studies, which reported a low incidence of dental caries in people with Down Syndrome (Brazil, 1988; CARVALHO, *et al.*, 2018; MORAES, *et al.*, 2002). Studies carried out in Bosnia and Herzegovina analyzing a group of 57 people with Down Syndrome, showed that there is a high prevalence of dental caries in people with the syndrome and that preventive programs and professional training

were presented as solutions to this problem (POROVIC, *et al.*, 2016). In studies conducted in São Paulo and Rio Grande do Sul, there were no significant differences in the CPO-D and ceo-d indexes of people with Down Syndrome in relation to non-syndromic individuals, finding a discrepancy in the results only in the comparison of gingival health and the saliva buffer capacity of the two groups (ENSSLIN *et al.*, 2009; MATHIAS *et al.*, 2011). Deficiency should not be used as a subterfuge for not taking care of the oral health of the DS, oral health is often ignored or underestimated if compared to the overall health in the disabled person, so it should be sought to improve the patient's oral hygiene through preventive measures and health promotion (OLIVEIRA *et al.*, 2008).

CONCLUSION

The present study did not present significant differences between the CPO-D and ceo-d indexes of individuals with DS and non-syndromic. Dental caries is still a disease present in the Brazilian population, the results found by this study should serve as a basis for the elaboration of health education strategies, preventive programs and treatments, with an emphasis on oral health, aimed to the entire population.

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