



Dental Caries Status in a Sample of Sudanese Children with Autistic Spectrum Disorder

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Abstract

Background: Autistic spectrum disorder is long life neuro-developmental disorder. The objectives of this study were to describe caries status for children with Autistic Spectrum Disorder (ASD) and to provide baseline data to facilitate future planning of dental services to those children.

Material and Method: A descriptive cross sectional study in Khartoum area for 43 autistic children attending 8 autistic centres. Data was collected based on caries assessment form, which consists of demographic data of the child and intra oral examination to detect visible caries using the dmft and DMFT scores. The response rate was 45 out of 65.

Result: Male to female ratio of autistic children sample in this study was 3:1. The mean DMFT/dmft of the caries status were (0.83) and (2.40) respectively. The mean DMFT score (1.0) in boys and (0.33) in girls, it was statistically significant with age ($p < 0.004$) in boys. The high percentage (74.1%) of decayed teeth was found in the mixed dentition age group (7-11 years) and no filled teeth was reported in this age group.

Conclusion: Although the autistic children had low level of DMFT/dmft compared to WHO classification, they had extensive unmet needs for dental treatment.

Keywords: Autism; DMFT; Children; Decayed teeth; Mixed dentition

Introduction

Autism or Autistic Disorder (AD) was described for the first time by American child psychiatrist, Dr. Leo Kanner in 1943 as a pervasive developmental disorder^[1]. The main features of autism include impairment in three main areas of functioning: Social interaction; Communication; and Patterns of behavior interests and activities which become restricted, repetitive and stereotyped^[2,3]. Although autism is a global disorder, relatively little is known about its presentation and occurrence in many developing countries. This may be due to insufficient parental and professional awareness of autistic syndrome disorder (ASD), in addition to the invalidity of early intervention services^[4].

Autism population experience few unusual oral health conditions, such as damaging oral habits including pouching of food, bruxism and self-injuries, in addition to dental trauma, which was reported in autistic individual with seizure disorder^[5].

Bhalla reviewed the literature and reported different views related to the dental needs of autistic patients. He concluded that, the majority of the autistic population studies revealed that caries susceptibility and periodontal disease prevalence were not so higher in autistic children compared to non-autistic individuals, however few studies reported an increased prevalence of caries susceptibility among autistic children, which may be attributed to the increased consumption of soft drink and sweet food in ad-

Received date: May 27, 2015

Accepted date: Sep 01, 2015

Published date: Sep 04, 2015

Citation: Abuaffan, A.H., et al. Dental Caries Status in a Sample of Sudanese Children with Autistic Spectrum Disorder. (2015) *J Dent Oral Care* 1(2): 60-62.

DOI: 10.15436/2379-1705.15.016

dition to the pouching of food due to inferior mastication abilities in autistic children^[6].

Sudan is a developing country located in north-east of the African Continent, little is known about the prevalence and oral health status of autistic children in all of the country. An organized oral health care for individual with special need at National or State level was not yet established. Therefore, the current study was conducted to describe the caries experience among a sample of institutionalized autistic children in Khartoum state. Moreover, the findings of this study regarding caries status can be used as baseline for appropriate planning of oral health services for autistic individual.

Material and Methods

The study population comprised of all children with Autistic Spectrum Disorder (ASD) attending the educational and rehabilitation



Centres in Khartoum State. The total number of special needs centres were 53 as obtained from the directorate of special needs in Ministry of Education-Khartoum State. All of the head master centres were contacted through phone to identify the current available numbers of autistic individual. Only 10 out of 53 centres were found offering care for ASD children, however, two centres refused to inform the researcher about the number of autistic individuals or any required information relative to those population. Since the total number of children with ASD attending educational and rehabilitation centres in Khartoum state was so small (65 individual), therefore it wise to include all of them in this study. With the assistance of the headmasters at the autistic centres, a written approval were sent to the parents prior to starting the intra oral examination for their autistic children.

The response rate of autistic’s parents was (45 out of 65). Data collection paper was filled for each child consists of demographic data (name, gender, age, mobile number, residence) and intra oral examination variable for detection of visible caries.

The data was collected in the institute during the study days. All the clinical examination was carried out by the main researcher, an assistance was gained from the care givers to those children who showed uncooperative behaviour. The clinical examination for carious status was performed in the teacher’s office, while the child seated on an ordinary chair under natural daylight using dental mirror and prob for visible detection of caries. Caries status was expressed by calculated of the DMFT/dmft indices according to WHO criteria^[7] to facilitate the comparison of the findings with national and international studies.

Data was collected, summarized, coded and entered to the Statistical Package for Social Sciences (SPSS) program (version 17) in the computer. Specific frequencies and percentages were obtained for all questions. Means were used to describe the age and caries status (DMFT/dmft). The Chi-square test was applied for testing the statistical significance of different associations between gender, age and caries index. For all statistical tests a P-value of less than 0.05 was considered as significant.

Results

A total of 45 autistic children (34 boys and 11 girls) their parents agree to participate in this study and return back the consent form and 20 children’s parent refused to have part in this study. Boys to girls ratio in this study was 3:1, and the age group of the children ranged from 2 to 16 years old (mean = 8.2 years) and it categorized into three main age groups (Figure 1).

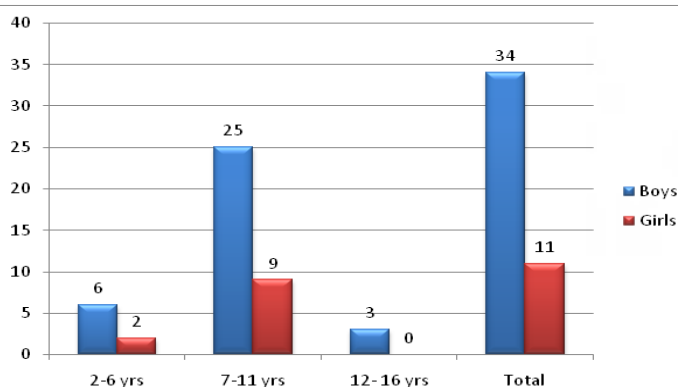


Figure 1: Distribution of Autistic children according to gender and age group

Table 1 shows the distribution of mean DMFT according to gender and age groups of autistic children. The total mean DMFT of the permanent dentition was (0.83 ± SD=2.945) distributed as (1.0) and (0.33) in boys and girls respectively. All the children in the age group 12-16 years were boys, they exhibited the highest score of DMFT (6.33). More or less an equal DMFT mean was obtained among both boys (0.30) and girls (0.33) in the mixed dentition age group. It was statistically significant with age (p = 0.004) in boys. In the age group 7-11 years old.

Table 1: Distribution of mean DMFT according to gender and age group

Age group (years)	Mean DMFT ± SD		Total
	Boys (N =28)	Girls (N =9)	
7-11	0.30 ± (0.926)	0.33 ± (0.707)	0.31 ± (0.859)
12-16	6.33 ± (9.292)	-	6.33 ± (9.292)
Total	1.0 ± (3.394)	0.33 ± (0.707)	0.83 ± (2.945)

In the deciduous dentition the distribution of mean dmft according to gender and age group was shown in (Table 2). The total mean dmft score was (2.4 ± SD = 3.842), it was noticed that boys had higher mean dmft (2.76) than girls (1.45). Boys in age group (2-6 years) exhibited the highest mean dmft (3.33), in contrast to the girls results in which no dmft was recorded (dmft=0). No statistical significant differences were found in association to dmft and gender in the autistic.

Table 2: Distribution of mean dmft according to gender and age group

Age group (years)	Mean dmft ± SD		Total
	Boys (N =31)	Girls (N =11)	
2-6	3.33 ± (6.408)	0	2.50 ± (5.632)
7-11	2.61 ± (3.702)	1.78 ± (2.438)	2.37 ± (3.377)
Total	2.76 ± (4.265)	1.45 ± (2.296)	2.40 ± (3.842)

The highest percentage of decayed teeth (74.1%) was recorded for the mixed dentition age group (7-11 years). However, no filled teeth were reported among this age group and the majority of the filled teeth (80%) was recorded in the young age group (2-6 years). The percentage of missed component was equal (37.5%) for age group (2-6 year and 7-11 years) old (Table 3).

Table 3: The percentage of decayed, missing and filled (deciduous and permanent) teeth in autistic children according to age group

Age group	Decayed	Missed	Filled
2 - 6 yrs	11.6%	37.5%	80%
7 - 11 yrs	74.1%	37.5%	0%
12-16 yrs	14.3%	25.0%	20.0%
Total	100%	100%	100%

Discussion

This is a clinical based study aimed to evaluate the carious status among a sample of autistic Sudanese children in Khartoum state with regards to age, gender. Gender distribution of autistic children in the present study was 3:1 male to female ratio, which was consistent with previous studies among autistic population^[8-10]. Where as, a ratio of 4:1 was reported among oth-

er autistic population^[11-14].

The total mean of dmft and DMFT in the present study was found to be 2.4 and 0.83 respectively. The level of DMFT obtained in this study was (0.83) and it considered low when compared to the results obtained by Jaber in United Arab Emirates (2.4), and also by Chadha, et al. in India dmft (2.4). Slight increase in dmft (2.75) was reported by Murshid in Saudi Arabia autistic population^[15-17].

In the present study the DMFT score when compare between genders revealed that, boys had higher mean DMFT (1.0) than girls (0.33), which in consistant with the results reported by Rekha, et al. in Chennai in which boys had higher percentage of dental caries than girls in all three dentitions stages^[10].

In contrast, previous studies performed in United Arab Emirates showed that the majority of girls experienced higher (4.4) mean DMFT value^[17], also in Saudi Arabia the girls had much higher DMFT than boys (7.25 and 1.6) respectively, moreover the dmft in the deciduous dentition was vice versa 3.62 for boys and 1.0 for girls^[15].

The variation in the value of dmft and DMFT among different autistic population in the different countries may be partially attributed to the studied sample size, ethnic background, as well as the dental awareness among the parents and autistic population, and the dental care provided to those population in each study countries.

The present study revealed that the DMFT score in Sudanese autistic sample was twice the DMFT recorded among normal Sudanese school children 12-year-old in Khartoum state^[18]. These can be due to the difficulty for assessing dental services for autistic children, in addition to the lack of special dental care center for autistic children in Sudan.

Limitations

- The small study sample size limits the generalization of findings to the broader autistic population in the whole country.
- Un-cooperation of head masters of some autistic centers lead to a minimize the response among autistic's parents.
- Caries status may be under estimated due to the use of natural sunlight in examination room and the proximal caries was not assessed in the sample due to practical difficulty in transporting the children to the X- ray clinic.

Recommendations

Appropriate oral health encouragement and treatment programs should be established, and more attention has to be directed by the oral health authorities to ascertain school- based oral health programs as the ordinary schools for regular children.

Conclusion

Although the autistic children had low level of DMFT/ dmft compared to WHO classification, they had extensive unmet needs for dental treatment.

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