

Original Research Article

Evaluation of Oral Hygiene in Children Aged 5-16 Living with Autism Spectrum Disorder at the CHU-CNOS Pr Hamady TRAORE of Bamako

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Abstract: Introduction: Autism is a group of neurodevelopmental disorders (NDDs) that manifest in early childhood and vary from one individual to another. The term "spectrum" encompasses the full diversity of disorders and indicates a person's potential progression within the spectrum. The objective of our study was to assess the oral hygiene of children aged 5 to 16 years living with autism spectrum disorder at the University Hospital, National Odontostomatology Center Professor Hamady Traore of Bamako. **Methodology:** This was a descriptive cross-sectional study conducted over a 6-month period (from January 2021 to June 2021) at the Bamako University Hospital, National Center for Odontology and Stomatology (CHU-CNOS). All autistic children in the Bamako district, aged 5 to 16 years, whose parents consented to participate in our study, were included. We collected 35 children through a self-administered questionnaire, sent to each parent accompanying their child. **Results:** Males were the most represented gender, with 68.60% and a ratio of 0.5. The most represented age group was 5 to 10 years, or 51.42%, with a mean age of 9.84 ± 2.73 and a range of 5 to 15 years. Children complained of toothache in 53.3% of cases. Participants experienced tantrums in 11.42% of cases. Children brushed their teeth alone without any assistance in 62.86% of cases. **Conclusion:** This study has allowed us to note structural and economic inadequacies in the care of children living with autism spectrum disorder. It is essential to develop pediatric health sectors to properly respond to the diverse health needs of this category of children in general and the needs for oral care in particular.

Keywords: Oral Hygiene, Children Aged 5-16, Autism Spectrum Disorder, Bamako University Hospital-CNOS.

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INTRODUCTION

Autism Spectrum Disorder (ASD) is a developmental disorder that affects children's cognitive functions, characterized by impaired communication, social interaction, and subjective awareness of events [1].

Autism has a strong sociocultural value in the Malian context, making it stigmatized and considered a disorder whose treatment is beyond the reach of conventional medicine. It is also a disabling disorder that requires social assistance [2].

According to a World Health Organization (WHO) study published in 2019, Autism Spectrum Disorder affects one in 160 children worldwide. This prevalence has increased in recent decades [3].

The overall prevalence of Autism Spectrum Disorder (ASD) in children aged eight (8) is 16.8 per 1,000, or one in 59 children, according to a study conducted in 11 American regions [3].

Furthermore, in Mali, the hospital frequency was estimated at 7.8 percent and 3.7 percent; respectively in 2013 and 2015 [4]. These two studies were carried out

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in the mental health care structures of the Bamako health district.

This study is a first in Mali to assess the relationship between dietary habits and the oral health of children living with autism spectrum disorder in Bamako, with a view to ensuring effective and efficient care.

The objective was to assess the oral hygiene of children aged 5-16 living with autism spectrum disorder receiving consultations at the Bamako University Hospital and National Center for Odontostomatology.

METHODOLOGY

We conducted a descriptive cross-sectional study. The study was conducted at the University Hospital, National Center for Odontostomatology (CHU-CNOS) Pr HT in Bamako. It took place over a period of 6 (six) months (January 2021 to June 2021). Children living with ASD aged 5-16 years from residential and care facilities in Bamako who were seen

for consultations at the CHU-CNOS constituted our study population. This recruitment was not exhaustive. Autistic children under 5 and over 16 years of age, and children with other conditions that may have a negative impact on the quality of oral hygiene, such as diabetes, were not included.

The sample consisted of 35 children. The survey form was the data collection tool. The variables were socioeconomic (age, sex, disability, education, medical follow-up) and clinical (CAD index, IP plaque index, GI gingival index, CPITN index, brushing frequency). All necessary precautions (anonymity, informed consent of the patient) were taken to ensure respect for the rights and freedoms of the subjects under study. Data entry and analysis were done with SPSS 21.0 French version software. Graphs were made with Excel 2016. Word processing was done with Word 2010.

RESULTS

❖ Sociodemographic Characteristics

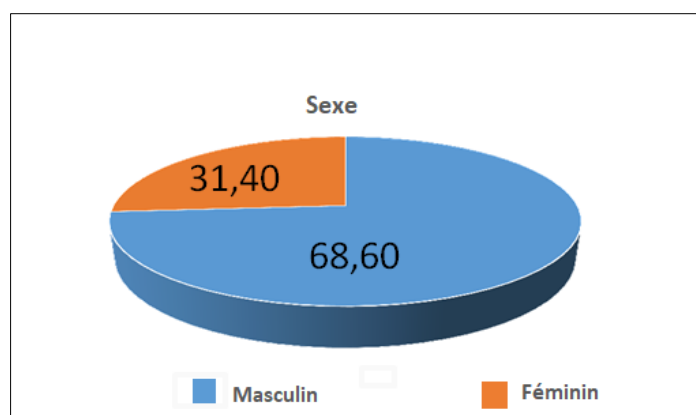


Figure 1: Distribution of the sample by gender

The male gender was the most represented, at 68.60% with a sex ratio of 0.45.

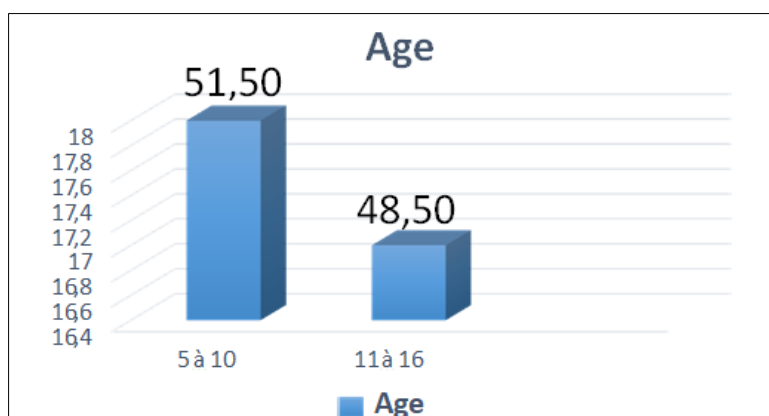


Figure 2: Sample distribution by age group

The most represented age group was 5 to 16 years, or 51.42%. The average age was 10.114 ± 2.73 , with extremes of 5 and 16 years.

❖ Clinical Characteristics

Table I: Distribution of children according to oral hygiene habits

Oral hygiene		Effective	Percentage (%)
Tooth brushing	Once or twice a day	22	62,86
	Three times a day or more	06	17,14
	Brushes rarely	07	20,00
Brushing technique: Poor	Brushing technique: Poor	20	57,14
Good	Good	15	42,85
Autonomy: Not autonomous	Autonomy: Not autonomous	19	54,29
Autonomous	Autonomous	16	45,71
	Total	35	100,00

Children who brushed their teeth independently, once or twice a day, represented 62.86%, while 54.29% were not.

Table II: Distribution of children according to the CAO index

Condition of teeth	Effective	Percentage (%)
Number of decayed teeth (C)	48	73,84
Number of missing teeth (A)	12	13,86
Number of filled teeth (O)	8	12,30
Number of subjects examined	35	100

Children had more decayed teeth, with a frequency of 73.84%.

Table III: Distribution of patients by pathology

Pathologies		Effective	Percentage (%)
Condition of the gum	Dental pathologies	20	57,14
	Periodontal pathologies	07	20,00
	Mucosal pathologies	05	14,28
	Lip lesions	03	08,38
Plate Index	0	20	57,14
	1	10	28,57
	2	03	08,58
	3	02	05,71
	Total	35	100,00

Children had more dental pathologies than periodontal pathologies with 57.14% and 20.00% respectively.

DISCUSSION

This study was conducted from January 4 to June 30, 2021, during which we interviewed, examined, and assessed 35 children aged 5-16 years living with autism spectrum disorder regarding their oral hygiene at the University Hospital (Centre National d'Odontostomatologie CHU-CNOS Pr HT) in Bamako.

❖ Sociodemographic Characteristics

○ By Sex

In this study, the male sex was predominantly represented, with a frequency of 68.60%. This male predominance is comparable to those of some authors such as T. Franklin [5], and Djiré H *et al.*, [6], with a 63.2% and 54.4% male predominance.

This result could be explained by the fact that males are more affected by autism than females, and this

biased sex ratio has been recognized since the first cases of autism were described in the 1940s [7].

○ By Age

The minimum age for this study was 5 years. The age group between 5 and 10 years was the most represented, with 51.50%; the 11-16 age group was the least represented with 48.50% and an average of 10.27 ± 2.97 years. This result is consistent with that of Y. Sanogo [8], who found an average age of 9.67 ± 1.90 years.

This difference could be explained by the sample size, which was not large enough in our study (35 and 521 for Y. Sanogo). According to oral hygiene habits our study reveals that 54.29% of children brushed their teeth with parental help, while 45.71% were independent. The majority of children brushed once or twice a day. This result is consistent with that of Ranaivoarisoa LN *et al.*, [9], who found in their study that 41.8% of children brushed their teeth once or twice a day. This is explained by a set of neurodevelopmental and body schema organization disorders in these

children, making learning hygiene acts and autonomy in these gestures slower and more difficult to achieve.

❖ Clinical Characteristics

O According to the CAO Index

The clinical examination revealed a CAO index of 1.37, which is similar to that found by Hennequin M. in their study on access to care for people with disabilities. Haute Autorité de Santé [10]. The caries rate of 73.84% corroborates with an epidemiological study on the oral health status conducted in primary schools in three districts of Abidjan (Adjamé, Williamsville, Cocody) of 12-year-old children, revealing a caries frequency index of 73.70% [11]. The low rate of people with filled teeth (12.30%) could be explained by the late use of conservative care.

O According to Pathologies and Plaque Index

- Dental pathologies were the most common, with 57.14%, followed by periodontal pathologies, with 20% of cases. This suggests that the rate of preventive and curative treatment among children living with autism spectrum disorder appears to be low, and the need for care is very high.
- Children had a plaque index of 42.86% of cases. This result is comparable to that of Diawara *et al.*, who reported that in their study, the plaque index assessed was average (1 - 1.9) in 56.32% of cases [12]. This could be explained by the lack of a government awareness policy on oral hygiene in Mali and the lack of parental assistance to children when brushing their teeth.

CONCLUSION

This study, conducted at the National Center for Odontostomatology Professor Hamady Traoré University Hospital in Bamako over a six-month period, revealed that children living with autism spectrum disorder (ASD) have serious oral health problems that require prompt treatment. It also revealed poor oral hygiene and poor dental care. Establishing a health facility for this segment of the population, equipped with materials/equipment and specialists, could be a solution to address this challenge.

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