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Prevalence of Tooth Decay in 12 Years Pupils at the Secondary School of Bougoula Hameau in Mali

Djire Hamed[1*], Diakite Youssouf[1], Traore Idriss Cheickna[1], Niang Amsala[2], Mariko Daoulata[2], Kane Aboubacar S. T[3]

[1]Department of Odontostomatology the Hospital of Sikasso, Sikasso, Mali
[2]Department of Pediatric Dentistry and Prevention of National Center of Odontostomatology Bamako, Bamako, Mali
[3]Department of Odontostomatology the Military Hospital of Bamako, Bamako, Mali

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***Corresponding author**: Dr. Djire Hamed

Abstract **Original Research Article**

Objectives: The objectives of this work were to determine the prevalence of tooth decay in 12 years pupils at the Bougoula Hameau secondary School in Mali and to evaluate their oral hygiene and eating habits. ***Method and materials*:** It was a descriptive cross-sectional study based on observation of dental status from October 8th to December 14th, 2018. The data were collected using a survey form and processed by using epi-info software version 3.5 .3. ***Results:*** Our results showed a prevalence of 98.06% and a CAO index of 4.93. Among the 103 pupils, 52.4% were male and 49.6% were female. 86.4% were using teeth brush; 87.6% brushed once a day; 96.1% nibbled between three daily meals; at least one CAO tooth was present in 98.1% of cases. ***Conclusion:*** Our results showed that oral health status in pupils is not satisfactory and is of great concern. It emerges from this study that it is necessary to set up an oral health prevention program in schools.

Keywords: Tooth decay, Prevalence, Pupils, child, Urban area, CAO.

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INTRODUCTION

Oral health is fundamental to breathing, eating, swallowing, speaking or even smiling. Impairment of these functions can considerably restrict an individual's ability to interact with others, to attend school [1].

According to the World Health Organization, tooth decay is considered the 4th global scourge behind cancer, heart disease and AIDS [2].

It is a chronic infection affecting 60 to 90% of school-age children and the vast majority of adults [3].

It is the most common disease in childhood, but it affects people of all ages throughout life [4].

For developing countries, it remains a real public health problem because of its impact on life quality of people affected and the high cost of its care both at the individual (expenditure, staff) and collective level (public self-center , social fund, etc.) [5].

It affects up to seven in ten children in India, one in three adolescents in Tanzania and nearly one in three adults in Brazil [6].

In 2011, twenty-seven countries in the Region had a national oral health policy, and only 14 of them had a specific budget. Most countries had a shortage of oral health workers and lacked data on the proportion of the population covered by preventive measures or oral health services [7].

In Mali, the oral health of the population is not well known because of the scarcity of surveys carried out in this area [8].

In the absence of coherent prevention policies, these diseases continue to constitute a burden that weighs especially on the most vulnerable or disadvantaged populations [9].

The main objective of our work was to determine the prevalence of dental caries in 12-year-old schoolchildren at Bougoula Hameau primary school in Mali.

The specific objectives were to assess oral hygiene habits on one hand and eating habits on the other hand.

MATERIAL AND METHODS

It was a descriptive cross-sectional study based on observation of dental condition. The targeted population consisted in pupils from the basic school of Bougoula Hameau in the third administrative region of Mali. Any pupil enrolled in Bougoula Hameau elementary school and aged 12 years was included in the study. We did an exhaustive sampling. Sample size was 103 pupils.

The variables studied were sex, eating habits (nibbling), oral hygiene habits (the notion and frequency of brushing) as well as dental caries.

Data were collected over a three-month period from October 8 to December 14, 2018.

Data were first collected using a survey form prepared for the circumstances. Then they were processed by the epi-info software version 3.5.3.

RESULTS

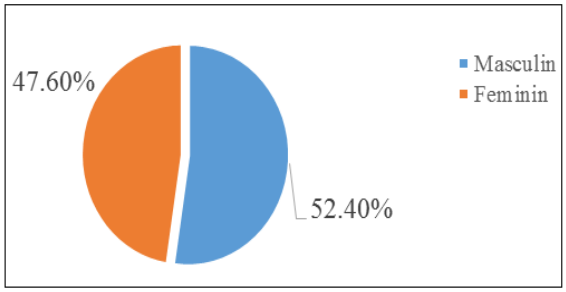

Fig-1: Distribution of pupils according gender. The male sex was the most represented with 52.4% of cases and a sex ratio of 1.1

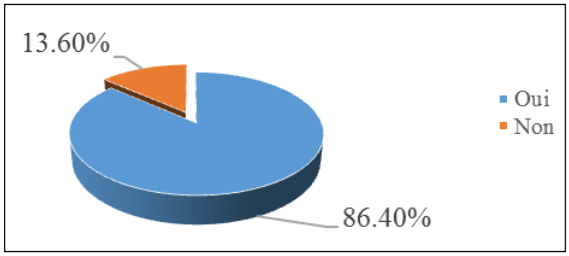

Fig-2: Distribution of pupils according tooth brushing. Pupils who used the toothbrush represented 86.4% of the sample

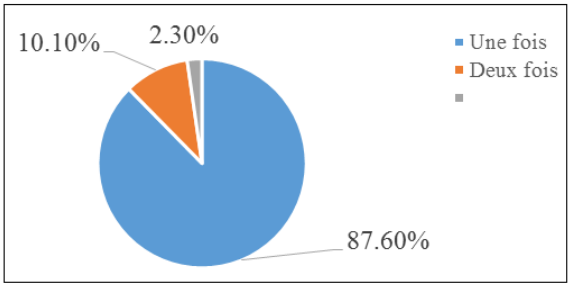

Fig-3: Distribution of pupils according brushing frequency. Students who brushed their teeth only once a day represented 87.6% of the sample

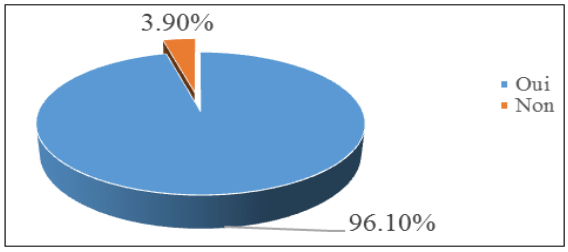

Fig-4: Distribution of pupils based on snacking. Students who snacked between meals represented 96.1%

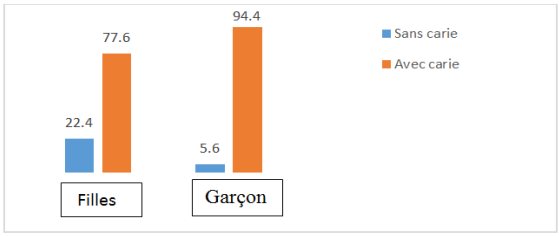

Fig-5: Distribution of pupils according sex and presence of cavities

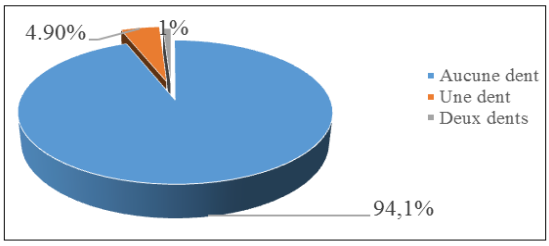

Fig-6: Distribution of pupils according the number of missing teeth Students who had no missing teeth represented 94.10% of the sample

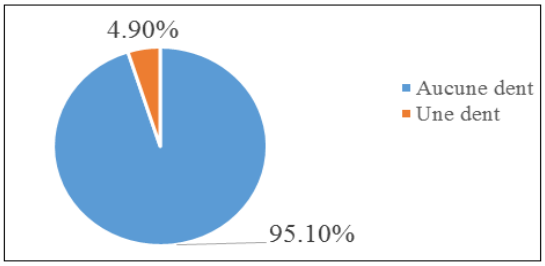

Fig-7: Distribution of pupils according the number of filled teeth. Students who had no filled teeth represented 95.1% of the sample

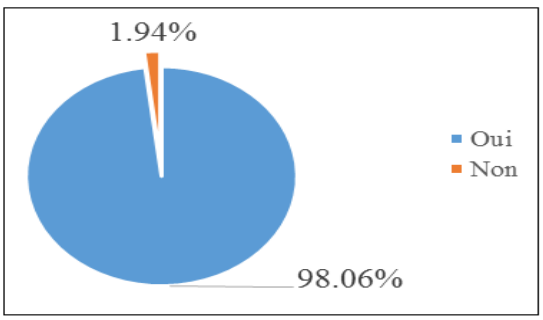

Fig-8: Distribution pupils according the presence of CAO tooth. At least one CAO tooth was present in 98.06% of the sample

DISCUSSIONS

Our noninvasive endo-oral examination procedure was based on observation of the dental condition by using a mirror and a headlamp. The latter provided us with sufficient lighting and replaced the operating light in the dental chair. The data were correctly collected and analyzed. A total of 103 students of both sexes were enrolled.

Depending on Gender

In our study, the male sex was slightly more represented in 52.4% of cases with a sex ratio of 1.1. Kané AST et al., [6] in a study conducted in 2013 at the Bamako military camp reported a female predominance of 54.49%. This difference can be explained by the fact that our study was conducted in rural areas.

Depending on Brushing and its Frequency

Concerning oral hygiene habits, 86.4% of pupils said they brushed their teeth and among these; 87.6% brushed only once a day. MBUkA SL et al., [16] in a 2018 study in DR Congo reported a rate of 42% of schoolchildren who brushed their teeth and only once a day. Okoko AR [17] in his study conducted in 2013 in schools in Libreville recorded a toothbrush use rate of 99.4%.

If the role of insufficient oral hygiene is certain in the onset and progression of tooth decay, the increase in the frequency of tooth brushing only does not appear to play a sufficient protective role if we take into account the fact that 86.4% of students reported brushing their teeth at least once a day. Several explanations can be put forward, in particular the ignorance of brushing techniques, the time of day when it is done, the quality of the toothbrush and / or the toothpaste and the age from which it is practiced, especially if the caries lesions are already established.

Depending on Snacking

Students who snacked between meals were in the majority with 96.1% of cases. Several authors reported the influence of the type of diet and oral hygiene habits on teeth condition of [13].

Depending on the Presence of Cavities

We recorded a 98.06 % prevalence of dental caries representing 101 students out of 103. The prevalence of dental caries is high in the African Region, as 60% to 90% of children and adults are affected by caries, although this condition does not occur to the same extent in most countries [10].

Diawara O et al., [11] in 2018 reported a prevalence of dental caries of 95.00% in their study on the prevalence of dental and periodontal diseases among students in Bamako.

In Senegal, Aidara AW and Bourgeois D [12] in 2014 in a national pilot study comparing the caries severity index estimated the prevalence of dental caries at 92%. Koko J et al., [13] in an epidemiological study conducted in 2009 among 12-year-old school children in Libreville found a prevalence of 81.4%. According to Songo [14] in 2013, the prevalence of caries disease is 79.1% in the juvenile population of the city of Kinshasa.

These caries prevalence rates compared to those of certain European and Asian countries are still high. Indeed according to Soumahoro [15], similar studies have shown in France a prevalence of 27.4% in 2006 and 16.8% in 2002, 26% in India in 2003, 43.8% in Italy in 2003 and 39.3 % in Germany.

This markedly difference in prevalence in these developed countries can be explained by the implementation of a prevention policy. In most low-income countries, the general public does not benefit from systematic oral health care and prevention programs [12].

Depending on the missing teeth, filled teeth

In our study, 77.6% of girls and 94.4% of boys had cavities. This difference can be explained by the fact that girls pay a little more attention to their oral hygiene than boys.

According to the CAO index

We recorded a CAO index of 4.93. This result is close to that of Lo CM et al., [18] and Koko J et al., [13] who found a CAO index of 3.93 and 4.9, respectively.

Item (C) represented 91.2 %, (A) 3.9 % (O) 4.9%. This low dental filling rate is due to the very low frequency of dental visits mentioned for different reasons or late consultation for tooth extraction. Kané AST et al., [6] also reported in their study, a late consultation of young patients. Many African countries come to the same conclusion [19-21].

CONCLUSION

The prevalence of dental caries among 12-year-old schoolchildren is 98.06 %. In view of the global prevalence given by the WHO, our results are worrying.

It emerges from this study that there is an urgent need to set up an oral prevention program in schools.

The results of our study call for the setting up of other even larger surveys on the extent of the territory in order to harmonize the national planning of oral health.

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