

Survey of Oral Hygiene Habits and Knowledge among School Children: a cross-sectional study from Italy



G. Tortora, M. Farronato, F. Gaffuri, P. Carloni, C. Occhipinti, M. Tucci, N. Cenzato, C. Maspero

*Department of Biomedical, Surgical and Dental Sciences, University of Milan, Milan, Italy
Fondazione IRCCS Ca' Granda, Ospedale Maggiore Policlinico, Milan, Italy*

e-mail: niccolo.cenzato@unimi.it

DOI 10.23804/ejpd.2023.1812

Abstract

Aim This study aimed to investigate the oral hygiene practice, knowledge and attitude of young adults, assessing their awareness about the impact of a certain “risk” behaviour on their oral and dental health.

Materials and Methods This is a cross-sectional survey study conducted on 829 students (350 males and 479 females, mean age 13–20 years) attending high school in Milan and surrounding areas. They were asked to complete anonymous questionnaire during the first semester of the 2019–2020 school year, under the supervision of a teacher and/or an assigned interviewer. The questionnaire was created by “Laboratorio Adolescenza”, in collaboration with the International Alliance of Responsible Drinking (IARD) Research Institute and the University of Milan. All of the data were entered into tables or graph form and analysed.

Results The data shows that 22.3% of males and 28.4% of females stated to always brush their teeth after lunch. 29.7% of males and 34.9% of females attended at least one dental check-up in a calendar year. Half of the participants had caries, gum bleeding and dental hypersensitivity. For males, having white teeth is the most relevant aspect of oral health, whilst for females having healthy teeth is more important. The results showed that 6% of males and 8.6% of females use dental floss daily. At least 80% of the total sample is aware of the impact of diet and bad habits (smoking, alcohol and drugs) on the condition of the oral cavity.

Conclusions There is a general awareness among Italian school children about the risks of bad oral habits, however, there is a need to improve the oral health knowledge, attitude and practices in the target population with emphasis on improvement of oral hygiene practices.

KEYWORDS Oral hygiene, health, dental knowledge, hygiene behaviour

Introduction

Good oral health practices are necessary since a young age to ensure positive long-term dental health and hygiene [Paglia, 2019].

The World Health Organization (WHO) underlines that oral health has improved significantly in recent years, but dental caries is still one of the major health problems among industrialized countries [Prabhu and John, 2015].

Oral health during adolescence is often neglected because adolescents, losing parental control, have a more distant relationship with the ‘doctor’ and are less inclined to accept recommendations and advice from adults [Mourad, 2020]. Moreover, young people have common nutritional problems, which includes low diet quality and the overconsumption of sugary drinks and snacks [Paglia, 2018]. These behaviours can increase tooth decay, especially when there is a lack of oral hygiene attitude [Giacaman RA, 2018; Hujuel and Lingström, 2017].

Teeth cleaning is an established oral hygiene modality that entails the removal of dental plaque, stains and other deposits from teeth, mainly to prevent dental caries and periodontal diseases [Azodo and Agbor, 2015].

Caries are the most prevalent disease among children and adolescents, and have a negative influence on health [Listl et al., 2015; Marja et al., 2008]. Dental caries, gingival and periodontal diseases occur commonly in children, but they can be prevented [Dahlen et al., 2020].

Gingivitis, a site-specific inflammatory condition caused by dental biofilm accumulation, is common in childhood and, when untreated, may progress to periodontitis. The prevalence of these conditions is higher in marginalised populations and disadvantaged communities [de Silva et al., 2016; Trombelli et al., 2018].

Oral health and nutrition have a synergistic relationship [Cenzato et al., 2021]. Oral infectious diseases, as well as acute, chronic and terminal systemic diseases with oral manifestations, influence the functional ability to eat while also having an impact on diet and nutrition status [Monda et al., 2021].

Nutrition and diet may affect the development and integrity

of the oral cavity as well as progression of diseases within the oral cavity, and are major multi-factorial environmental factors in the aetiology and pathogenesis of oral and facial diseases and disorders (US Department of Health and Human Services, 2000).

(Nutrition, oral health and the young child Sudeshni Naidoo and Neil Myburgh Department of Community Oral Health), University of the Western Cape, Cape Town, South Africa [Moynihan and Kelly, 2014].

This study, created by "Laboratorio Adolescenza", in collaboration with the IARD Research Institute and the University of Milan, aim to identify, during the period of adolescence, changes in lifestyle and "at risk" behaviours, such as alcohol abuse, drug abuse, tobacco use, abuse of sugary drinks, improper nutrition and poor oral hygiene, which potentially constitute risk factors for the welfare of the oral cavity. Adolescents often underestimate the negative effects that any "vicious" or "harmful" behaviour can have on the state of oral health [Farronato et al., 2009-2014;

Monda et al., 2021]. This study therefore aims to identify the oral hygiene habits of adolescents and assess their awareness of the effects that "risky" behaviours can cause to oral health.

Moreover, the survey aims to provide a picture, as complete and detailed as possible, of the possible oral-dental manifestations of adolescents' "at risk" behaviours.

Materials and Methods

The study was a cross-sectional survey that included 829 students (350 males and 479 females) from secondary schools in and around Milan.

Students' consent to participate was obtained verbally from the headmaster of each school and an informed consent form was signed by the children's parents/guardians. All subjects were selected according to the following criteria: age between 13 and 20 years, so that they could easily understand and answer

<p>1. At what time of day do you brush your teeth?</p> <p>a. In the morning just after waking up (Always / Sometimes / Rarely / Never)</p> <p>b. In the morning after breakfast (Always / Sometimes / Rarely / Never)</p> <p>c. After lunch (Always / Sometimes / Rarely / Never)</p> <p>d. After dinner (Always / Sometimes / Rarely / Never)</p> <p>e. After every meal, even light ones (Always / Sometimes / Rarely / Never)</p> <p>f. In the evening before going to sleep (Always / Sometimes / Rarely / Never)</p>	<p>2. When you have problems with your teeth or concerns about the health of your mouth what do you do?</p> <p>a. I go to a private dentist</p> <p>b. I go to the hospital and choose to get treatment with the National Health Service</p> <p>c. I ask friends and family for advice</p> <p>d. I look for information on the internet, scientific journals</p> <p>e. I ask my general practitioner or pharmacist for advice.</p>		
<p>3. How often do you visit a dentist for dental check-up or toothache or aesthetics (braces and whitening) or prevention (ablation, sealing, fluoroprophylaxis and learning how to properly brush your teeth)?</p> <p>a. More than 2 times per year</p> <p>b. Once or twice a year</p> <p>c. Less than once a year</p> <p>d. I only go if I have a problem</p> <p>e. I have never gone</p>	<p>4. Did you bring orthodontic devices?</p> <p>a. Yes, I am using them at this time</p> <p>b. Yes, in the past</p> <p>c. Yes, and it has been effective</p> <p>d. No, I didn't need it</p> <p>e. No, but I should have put it on</p> <p>f. Yes, but it was not effective</p>	<p>5. Have you had problems with your teeth and/or gum?</p> <p>a. Caries (I suffered in the past / I suffer now / Never suffered)</p> <p>b. Feeling of "cold" to the teeth (I suffered in the past / I suffer now / Never suffered)</p> <p>c. Bleeding gums (I suffered in the past / I suffer now / Never suffered)</p> <p>d. Pain (I suffered in the past / I suffer now / Never suffered)</p>	
<p>6. Which of the following statements do you agree or disagree with?</p> <p>a. The type of diet does not affect oral health</p> <p>b. A diet rich in fresh foods, fiber, minerals and vitamins promotes oral health</p> <p>c. By eating a lot of carbohydrates (bread, pasta, sweets, chocolate, sugar) oral health improves</p> <p>d. Chewing hard foods helps cleanse the mouth</p> <p>e. Moderate intake of alcohol (wine or beer) during meals reduces the number of bacteria in the oral cavity and prevents tooth decay</p> <p>f. Smoking and consumption of drugs promote bad breath and the onset of stains on the teeth</p> <p>g. Smoking, alcohol intake and drug use are risk factors for the development of oral cancer</p> <p>h. Alcohol (in moderate doses) is a good remedy to relieve toothache</p> <p>i. The use of drugs favors the onset of tooth decay</p>			
<p>7. Of the following aspects related to "oral health," which is the most important to you</p> <p>a. White teeth</p> <p>b. Non-painful teeth</p> <p>c. Non-bloody gums</p> <p>d. Not having halitosis</p>	<p>8. Which of the following tools do you use for oral hygiene?</p> <p>a. Toothbrush (Always / Sometimes / Rarely / Never)</p> <p>b. Toothpaste (Always / Sometimes / Rarely / Never)</p> <p>c. Mouthwash (Always / Sometimes / Rarely / Never)</p> <p>d. Dental floss (Always / Sometimes / Rarely / Never)</p> <p>e. Pipe cleaner (Always / Sometimes / Rarely / Never)</p>	<p>9. How often do you change your toothbrush?</p> <p>a. Every month</p> <p>b. Every 2/3 months</p> <p>c. Every 6 months</p> <p>d. Once a year</p> <p>e. When the bristles become damaged</p>	<p>10. Indicate the brushing motion you usually use (Figure 1)</p> <p>a. Figure 1;</p> <p>b. Figure 2;</p> <p>c. Figure 3;</p> <p>d. Figures 1 and 2;</p> <p>e. Figures 2 and 3;</p> <p>f. Figures 1 and 3;</p> <p>g. Figures 1, 2 and 3</p>

TABLE 1

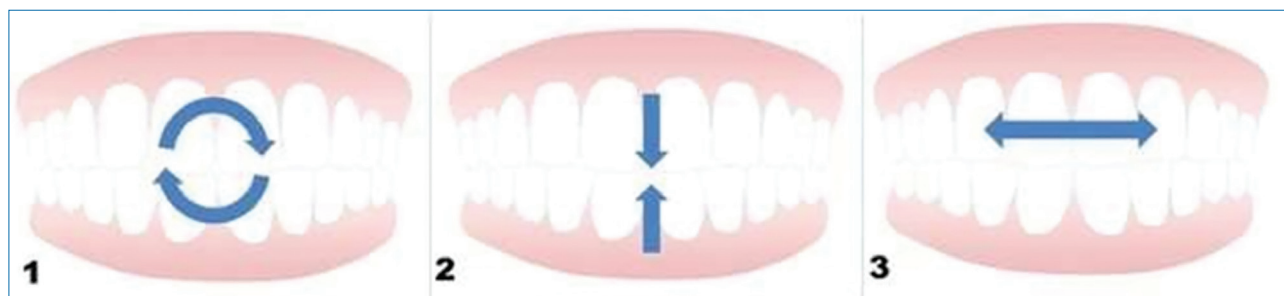


FIG 1 Brushing movements

the questionnaire. The objective of the survey was informed and explained to the participants and those who voluntarily agreed to participate in the survey were asked to complete the questionnaire.

The questionnaires were sent in the first semester of the 2019–2020 school year and completed during school time, in the presence of a teacher and/or a supervisor.

The questionnaire involves filling in questions on four topics such as integration, culture, work and oral hygiene, the section on which the data analysis focuses.

In the second step, the questionnaires were viewed one by one, and the acquired data was entered manually into an Excel file.

The data was subsequently converted into percentages, distinguishing the results obtained among male, female and total sample subjects (males and females together).

In the next step, summary graphs, column histograms, were produced for each question in the dental survey, oral health perception and orthodontic appliance sections, with the data reported in percentage form.

Finally, the sections were organised in such a way as to immediately convey the overall results

Characteristics of the questionnaire

The questionnaire entitled “Adolescents, a future in the making: integration, culture, work, health” consists of a total of 40 questions: the first thirty deal with the topics of integration, culture and work, the remaining ten focus on oral hygiene habits. It is divided into closed, multiple-choice questions, formulated in a simple and clear style. Anonymity was guaranteed to make the answers more authentic and free.

Questionnaire structure

The questions related to oral health, submitted to the respondents, were formulated as in table 1.

Questions number 1, 8, 9 and 10 concern the analysis of oral hygiene habits. They are aimed at evaluating at what time or times of day young people are most likely to clean the oral cavity, the devices used for mechanical and chemical control of bacterial plaque, the frequency with which the toothbrush is replaced over the course of a year and the brushing movement adopted.

Question number two, on the other hand, concerns the type of professional figure young people turn to or the information medium (Internet) they use to find answers to any problems and clarify doubts about oral health.

With questions three and five, we initially wanted to identify how often the students went to the dentist for certain mouth problems and, subsequently, to identify what the main problem was.

Question number four, on the other hand, looked at the number of young people who had worn orthodontic braces

and their thoughts on this.

Finally, in questions six and seven, we sought to understand the level of knowledge and awareness of young people regarding oral health, particularly in relation to factors such as diet, smoking, alcohol consumption and drugs, and what they think is the most important aspect of a healthy mouth, choosing one of the four options provided.

The data was analysed using SPSS (version 26.0). Descriptive analyses were conducted using frequencies and proportions for categorical variables and means with standard deviations (mean \pm sd) for continuous variables. The independent sample t-test was used to find the significant difference in the averages of oral health knowledge, attitude and behaviour between the groups of males and females, while the Karl Pearson correlation was used to assess the relationship between oral health knowledge, attitude and behaviour.

Results

The sample examined consisted of 350 males (42%) and 479 females subjects (58%).

Home Oral Hygiene (H.O.D)

Daily H.O.D.

The results of daily H.O.D. shows that school children of both genders always brush their teeth after breakfast (66.9% males and 71.0% females), after dinner (62.6% males and 71.6% females) and before going to bed (72.0% males and 87.0% females).

The figure for boys and girls who never brush their teeth after each light meal is significant, at 43.4% for males and 39.9% for females.

Upon awakening, there is no prevailing tendency, and the results show that children fall into two categories: those who always brush their teeth and those who never brush them.

After lunch, the habit of brushing one’s teeth is not very common; slightly more than one third of young people do it consistently.

Devices

As regards the use of different mouth-cleaning devices, there are no significant statistical differences between adolescents of both sexes.

Toothbrush and toothpaste are devices that are never missing from every teenager’s routine.

About one in two young people, corresponding to 60%, occasionally use mouthwash and floss. The pipe cleaner, on the other hand, is an instrument generally used occasionally: the majority of the interviewees (60.0% males and 52.8% females) stated that they never use it, the remainder use it sometimes

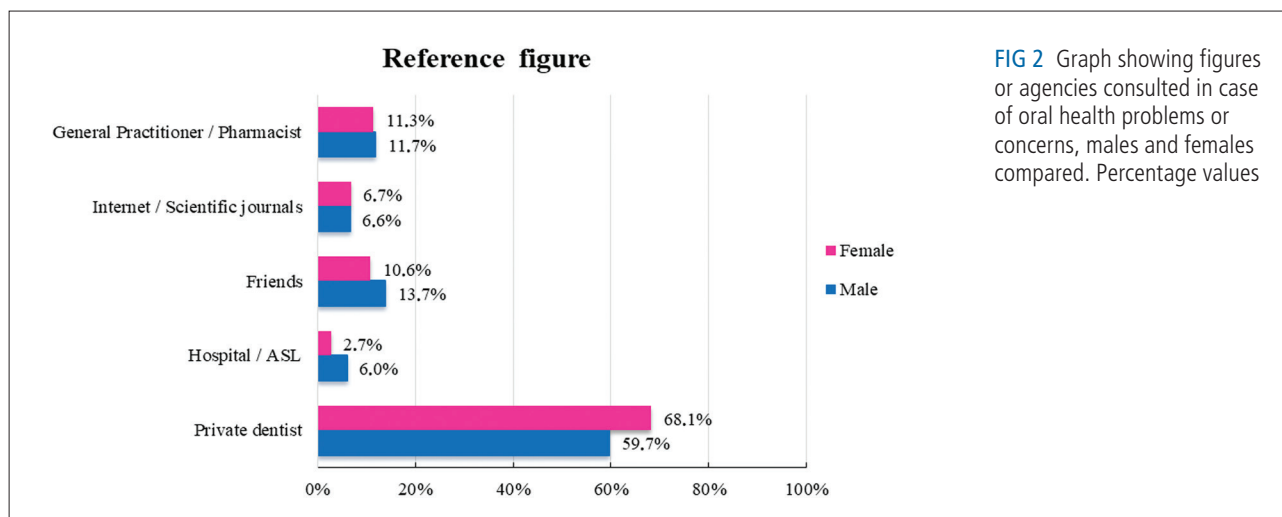


FIG 2 Graph showing figures or agencies consulted in case of oral health problems or concerns, males and females compared. Percentage values

(22.0% males and 22.0% females) or rarely (22.0% males and 22.5% females).

Toothbrush change frequency

The results of the question "How often do you change your toothbrush?" show that the majority of young people change their toothbrush every two to three months (38.9% males and 44.9% females); 25.1% of the male sample and 20.7% of the female sample replace their toothbrush only when the bristles are worn or damaged: 20.6% of males and 17.5% of females replace it every month.

Finally, few adolescents replace it every 6 months or once a year, respectively 9.1% and 5.1% for males and 13.2% and 3.1% for females.

Type of brushing

Moving to the inquiry about brushing movements, the results showed that adolescents mainly adopt a combination of the three brushing movements, i.e. circular, vertical and horizontal, with overlapping percentages in both male and female genders (32.9% and 33.8%).

Adolescents who brush their teeth with only one type of movement showed low and comparable percentages for both sexes: those adopting the circular movement only were 4.0% of males and 3.5% of females, those adopting the vertical movement only were 14.0% of males and 9.8% of females, those adopting the horizontal movement only were 6.6% of males and 4.8% of females. Young people who adopt the combination of two movements are 11.4% of males and 8% of females for the circular and vertical movement; 24% of both genders for the vertical and horizontal movement and only 5.4% of males and 5.2% of females for the circular and horizontal movement.

Major complications of the oral cavity in the adolescent period

Gingival bleeding

The survey showed that gingival bleeding is a problem encountered in approximately half of the adolescents under review. Of these, 35.4% of males and 36.3% of females have suffered from this complication in the past; while lower percentages (13.7% males and 20.0% females) currently suffer from it.

Score gums

Concerning the incidence rate of sore gums, the study showed that there is a considerable percentage of young people (24.6%

of males and 28.2% of females), who suffer from it.

The figures concerning the percentage of adolescents who have not been affected by this disorder is noteworthy, (67.1% males and 60.5% females). Very few adolescents (6.9% males and 9.8% females) suffer from it to date.

Dentin hypersensitivity

Out of 829 subjects analysed, 31.4% of the males and 33.0% of the females suffered from dentin hypersensitivity. About half of the sample had never had this problem (47.4% males and 43.6% females). Currently, large percentages (19.1% males and 21.7% females) of young people suffer from this complication.

Caries Experience

About half of the adolescents have suffered from caries in the past (43.1% males and 47.8% females). On the other hand, the percentages of those currently suffering from the disease are small (3.7% male and 4.8% female).

The results show that the major oral complications typical of the adolescent period are present in about half of the sample surveyed

Dental survey: reference figures, problems and checks frequency

The answers given to the question "When you have problems with your teeth or doubts about the health of your mouth, what do you do?" illustrated in Figure 2, show that a high percentage of boys (59.7%) and girls (68.1%) say that they turn to a private dentist to solve problems or doubts about the health of their mouth; smaller percentages, 13.7% of boys and 10.6% of girls, turn to friends or relatives.

The general practitioner and pharmacist are consulted to a limited extent (11.7% of males and 11.3% of females). Finally, there is also a small percentage of young people (6.6% of males and 6.7% of females) who prefer to consult the Internet or scientific journals.

Regarding check-ups, it is recorded that a high percentage of adolescents, both males and females, visit the dentist more than twice a year, 35.1% and 36.5% respectively. The values of those who chose the alternative "once/twice a year" is similar (29.7% males and 34.9% females). Low percentages are found in the option 'less than once a year' (13.3% males and 9.0% females).

The female component presented itself more frequently to the dentist for an aesthetic factor: 14.8% of the female component

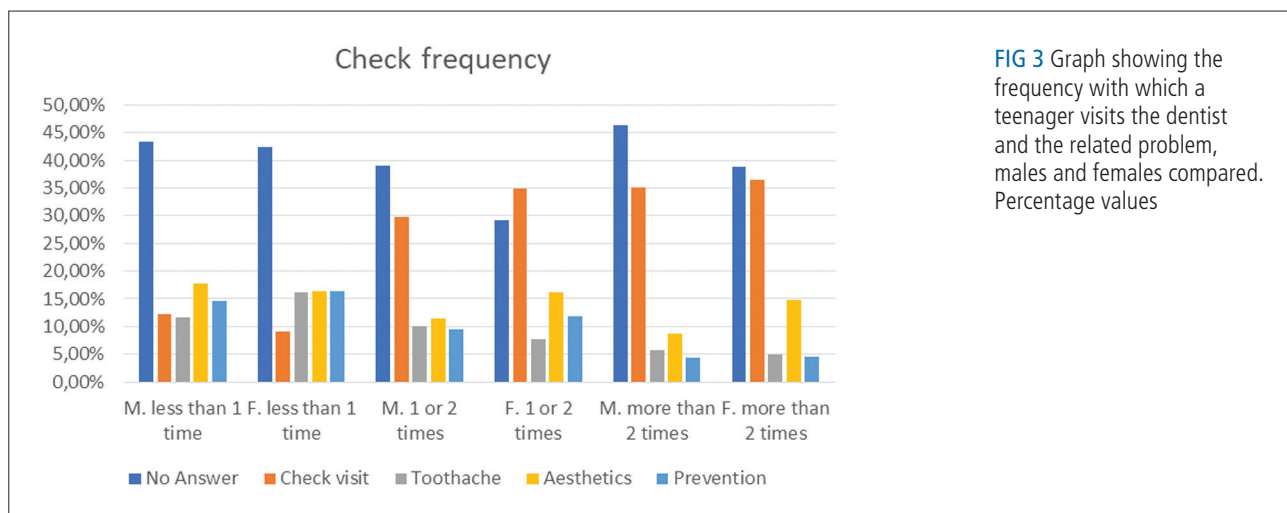


FIG 3 Graph showing the frequency with which a teenager visits the dentist and the related problem, males and females compared. Percentage values

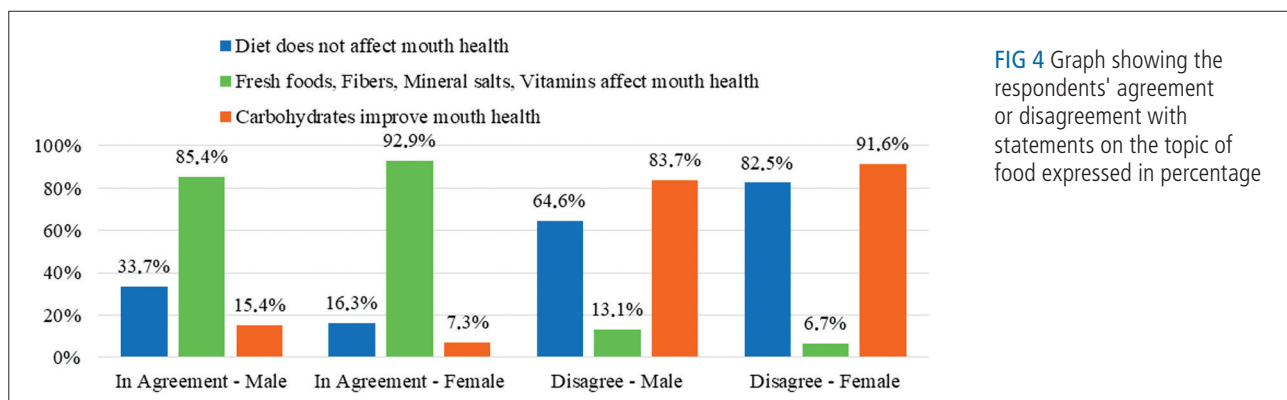


FIG 4 Graph showing the respondents' agreement or disagreement with statements on the topic of food expressed in percentage

compared with 8.6% of the male component for the option "twice a year" and 16.1% compared with 11.4% for the option "once/twice a year". If we consider the answer "less than once a year", the difference between males and females becomes minimal, with respective percentages of 17.7% and 16.3%.

Among adolescents, prevention occupies a marginal place with low percentages for all frequency alternatives, respectively: 4.3% of males and 4.6% of females for the option "twice a year", 9.4% and 11.9% for the option "once/twice a year" and finally 14.6% and 16.3% for the option "less than once a year".

Toothache also registers small percentages, in both sexes, for all frequency alternatives, which never exceed 15.0%.

Oral Health Perception

Figure 4 shows that 64.6% and 82.5% of males and females, respectively, are aware that the type of diet influences oral health.

Most of them (85.4% males and 92.9% females) agree that fresh food, fibre, minerals and vitamins help to keep the oral cavity in good condition. Few young people (15.4% males and 7.3% females) consider carbohydrates to be favourable factors for oral well-being.

The habit of consuming alcohol (figure 5) is regarded by 37.3% of males and 34.2% of females as a remedy to reduce bacteria and prevent caries. In contrast, 59.7% and 64.3% of the latter believe the opposite.

Modest, overlapping percentages (27.7% of males and 27.1% of females) believe that drinking alcohol is a solution for toothache, while a considerable percentage (75.4% males and 88.1%

females) believe that smoking and drugs promote halitosis and tooth pigmentation. Similarly, numerous adolescents (78.6% of males and 91.6% of females) believe that the same elements are also risk factors responsible for oral cancer. One in two young people of both sexes believe that a drug is the cause of caries.

Of the four alternatives given: white teeth, non-painful teeth, non-painful gums and not having halitosis (figure 6), the majority of males, 39.1%, consider having white teeth to be the most important aspect of a healthy mouth; whereas for females (33.0%) it is not having painful teeth, followed by not having halitosis (28.6%) and then having white teeth (23.2%). Male adolescents, put not having painful teeth in second place (34.3%), followed by not having halitosis (18.0%). Finally, painful gums are considered by the adolescents to be the least important aspect among the four options provided (5.1% males and 12.9% females).

Orthodontic appliance

Analysis of the data in response to the question "Have you ever worn orthodontic braces?" (Figure 7) shows that a good percentage of the adolescents stated that they had worn (22.0% males and 19.0% females) or were currently wearing (14.9% males and 17.3% females) orthodontic braces.

Among the adolescents who wore orthodontic braces, 15.4% and 25.9% of the male and female components, respectively, considered the results obtained from the treatment to be effective; few, on the other hand (2.6% male and 2.3% female) were the adolescents who judged it to be ineffective.

32.0% of the male and 23.2% of the female adolescents stated that they had never worn an orthodontic appliance be-

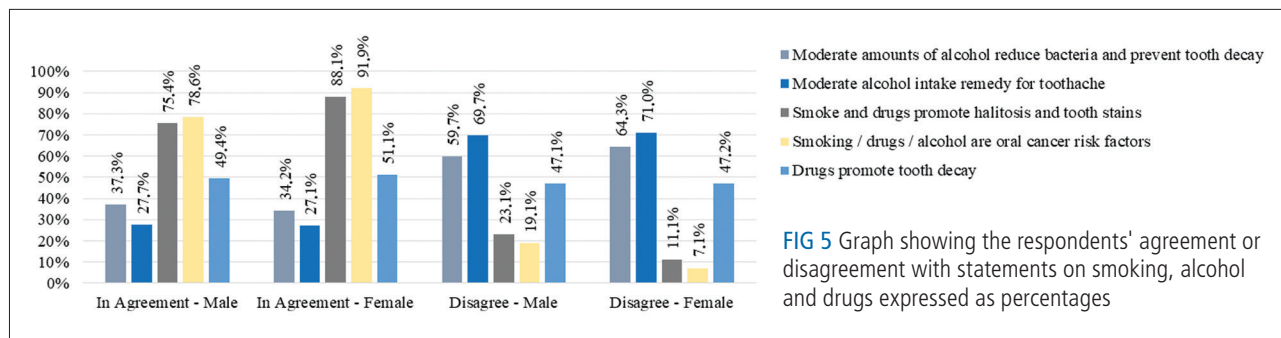


FIG 5 Graph showing the respondents' agreement or disagreement with statements on smoking, alcohol and drugs expressed as percentages

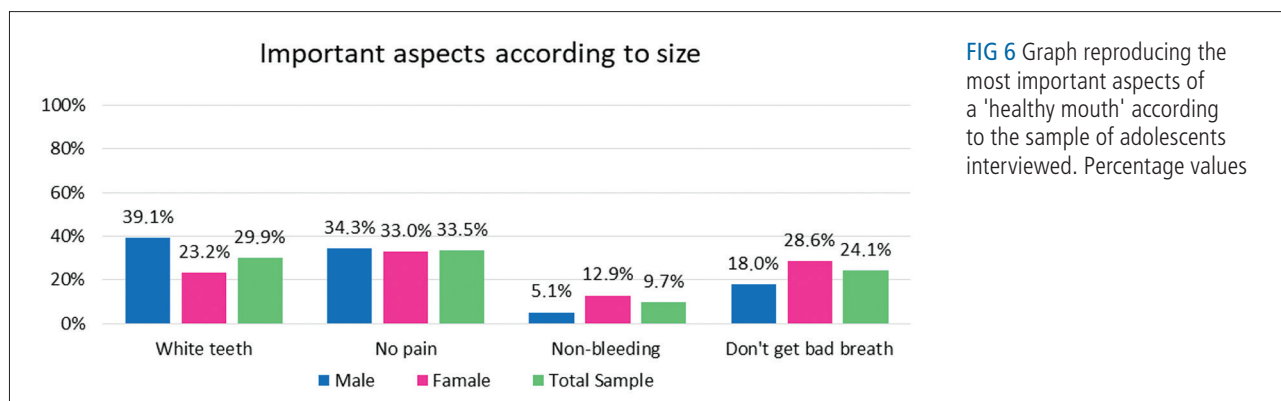


FIG 6 Graph reproducing the most important aspects of a 'healthy mouth' according to the sample of adolescents interviewed. Percentage values

cause they considered it useless.

A small percentage (12.3% of males and 11.7% of females) of adolescents felt that they would need to wear braces.

Discussion

Having white teeth is, according to the male component, the most important aspect of a healthy mouth. Rightly so, however, girls consider the most important aspect to be having healthy teeth.

In theory, to maintain healthy teeth, everyone should brush them 30 minutes after every meal; from a practical point of view, however, today's hectic life often prevents this (just think of the impossibility, or at least the difficulty, of brushing one's teeth at school or at work) [Folayan and Olatubosun, 2018]. It is therefore important to try to maintain proper oral hygiene at least after the three main meals of the day: breakfast, lunch and dinner [Paglia, 2019; Ozgul et al., 2019].

A review of the data collected shows that, fortunately, most adolescents always brush their teeth after breakfast and before going to bed.

The situation changes, however, if one looks at the incidence of brushing after lunch, because a large proportion of the respondents show that they do not have a clear idea of the importance of brushing their teeth after a meal: in fact, only 22.3% of the male sample subjects and 28.4% of the female sample subjects stated that they do it regularly every day.

One explanation for these low incidences can be found in the lack of information and knowledge that educational institutions have on the importance of brushing one's teeth after meals [Costacurta et al., 2020].

One solution might be to include the figure of the dental hygienist in schools to educate and motivate students and teachers, on the correct methods of oral hygiene at home.

In addition to this, observation of the results obtained about check-ups and prevention visits required over the course of an

entire year showed that, unfortunately, only a low percentage of young people, 32.7% with minimal differences between the two sexes, undergo one, sometimes two, dental health check-ups and prevention visits each year.

Among adolescents, an average of one in two young people, with a slightly higher incidence among females, cite gingivitis, caries and dentinal hypersensitivity as the main problems encountered. This alarming data is justified by the fact that most young people do not habitually consult a professional except in the presence of problems, ignoring the primary role they play in the prevention of diseases of the oral cavity [Severino et al., 2021].

It is therefore important to spread the message among young people that regular preventive check-ups are a protective factor against the onset of oral diseases [Severino et al., 2021].

Analysing the answers provided on the oral hygiene devices used, the attention was particularly caught by the frequency of use of dental floss (essential for the correct prevention of interproximal caries) and toothbrush. Only 6.0% of males and 8.6% of females, make daily use of the former instrument, against 37.6% and 29.2% who never use it and the remaining percentage of users who use it occasionally.

The majority of both genders, however, appear to be unfamiliar with the pipe cleaner, which is a valuable tool for removing interdental plaque, especially in subjects with large interdental spaces.

The 'Italian Society of Periodontology' recommends flossing and/or interdental brushes to carefully remove plaque between the teeth, at least once a day, emphasising that brushing alone is not enough to clean the mouth and prevent tooth and gum disease [Paolantonio et al., 2019].

It therefore seems necessary to educate and inform young people more about home oral hygiene manoeuvres, focusing on the most effective tools for mechanical and chemical control of bacterial plaque, the brushing movement to adopt and the time of day to brush their teeth. These are all notions that adolescents should already have acquired, because 60% of

	Males	Females	Total
No response	3 0.9%	3 0.6%	9 0.7%
Yes, I use it in this period	52 14.9%	83 17.3%	135 16.3%
Yes, in the past	77 22.0%	91 19.0%	168 20.3%
Yes, it was effective	54 15.4%	124 25.9%	178 21.5%
Yes, but it was not effective	9 2.6%	11 2.3%	20 2.4%
No, I didn't need it	112 32.0%	111 23.2%	223 26.9%
No, but I should have put it	43 12.3%	56 11.7%	99 11.9%
Total	350 100.0%	479 100.0%	829 100.0%

FIG 7 Table showing the number of adolescents who wore braces. Percentage and absolute values

them have received orthodontic treatment and, therefore, will have already encountered professionals capable of imparting correct notions of oral hygiene; despite this however, it seems from the answers provided that the information has not yet been adequately perceived.

The survey also shows that both male and female adolescents have a basic awareness of the negative and harmful consequences that the type of food they consume and bad habits, such as alcohol, tobacco or drugs, can cause to the oral cavity. However, this awareness does not prevent them from engaging in these behaviours, perhaps because of already established habits; awareness-raising campaigns should therefore be initiated first.

Finally, the comparison between adolescents of the two different genders revealed that the female sample shows much more attention to oral health overall than the male sample. An attention that derives essentially from a greater and earlier overall maturity and sensitivity, also demonstrated in the field of prevention and health.

In general, it appears necessary to promote the dissemination of informative educational messages linked to learning correct behaviour, in relation to habits, unhealthy lifestyles and oral hygiene, emphasising the key role of the school, the main and immediate vehicle of information.

It is therefore crucial to continuously motivate and raise awareness among children because during the adolescent period it is much easier to develop so-called 'risky' behaviour, sometimes ignoring or rather unaware of the consequences it may have on the oral cavity [Monda et al., 2021].

Conclusions

The most recent reports from the World Health Organisation state that the main diseases of the oral cavity that occur during adolescence (carious disease and periodontal disease) have several risk factors, including tobacco consumption, alcohol abuse, unhealthy diet and a lack of oral hygiene. These risk factors, mainly linked to unhealthy individual behaviour, are strongly influenced by the economic, social and environmental context in which we live. Correct primary and secondary prevention of the most important pathologies makes it possible to avoid the occurrence of more severe clinical situations.

As a result of the survey, it can be observed that adolescents

show a basic awareness of the consequences that these 'risky' behaviours may have; at the same time, however, they are not well informed about proper oral hygiene and prevention methods. The lifestyle adopted during adolescence has, in fact, profound repercussions on health in adulthood, so if it is true that health begins in the mouth, then we should focus more on prevention. The substantial importance of prevention has led to focus interventions mainly in the age of development, since there is evidence to confirm that promoting oral health in the early years of life allows the establishment of correct and permanent personal habits. Implementing interventions during early schooling could make a positive difference in the health of today's adolescents and tomorrow's adults.

References

- > Azodo CC, Agbor AM. Gingival health and oral hygiene practices of schoolchildren in the North West Region of Cameroon. *BMC Res Notes*. 2015;8(1).
- > Cenozo N, Iannotti L, Maspero C. Open bite and atypical swallowing: orthodontic treatment, speech therapy or both? A literature review. *Eur J Paediatr Dent*. 2021 Dec;22(4):286-290. doi: 10.23804/ejpd.2021.22.04.5.
- > Costacurta M, Epis M, Docimo R. Evaluation of DMFT in paediatric patients with social vulnerability conditions. *Eur J Paediatr Dent*. 2020 Mar;21(1):70-73. doi: 10.23804/ejpd.2020.21.01.14.
- > Dahlen G, Fejerskov O, Manji F. Current concepts and an alternative perspective on periodontal disease. Vol. 20, *BMC Oral Health*. 2020.
- > de Silva AM, Hegde S, Akudo Nwagbara B, Calache H, Gussy MG, Nasser M, Morrice HR, Riggs E, Leong PM, Meyenn LK, Yousefi-Nooraie R. Community-based population-level interventions for promoting child oral health. Vol. 2016, *Cochrane Database of Systematic Reviews*. 2016.
- > Farronato G, Maspero C, Esposito L, Briguglio E, Farronato D, Giannini L. Rapid maxillary expansion in growing patients. Hyrax versus transverse sagittal maxillary expander: a cephalometric investigation. *Eur J Orthod*. 2011 Apr;33(2):185-9. doi: 10.1093/ejo/cjq051. Epub 2010 Nov 8. PMID: 21059876.
- > Farronato G, Giannini L, Galbiati G, Maspero C. A 5-year longitudinal study of survival rate and periodontal parameter changes at sites of dilacerated maxillary central incisors. *Prog Orthod*. 2014 Jan 6;15:3. doi: 10.1186/2196-1042-15-3. PMID: 24393572; PMCID: PMC3903036.
- > Folanay M, Olatubosun S. Early Childhood Caries - A diagnostic enigma. *Eur J Paediatr Dent*. 2018 Jun;19(2):88. doi: 10.23804/ejpd.2018.19.02.00.
- > Giacaman RA. Sugars and beyond. The role of sugars and the other nutrients and their potential impact on caries. Vol. 24, *Oral Diseases*. 2018.
- > Hujuel PP, Lingström P. Nutrition, dental caries and periodontal disease: a narrative review. *J Clin Periodontol*. 2017;44.
- > Leonardo Trombelli, Roberto Farina, Cléverson O Silva, Dimitris N Tatakis. Plaque-induced gingivitis: Case definition and diagnostic considerations. *J Periodontol*. 2018 Jun;89 Suppl 1:S46-S73. doi: 10.1002/JPER.17-0576.
- > Listl S, Galloway J, Mossey PA, Marcenes W. Global economic impact of dental diseases. In: *Journal of Dental Research*. 2015.
- > Marja-Leena M, Päivi R, Sirkka J, Ansa O, Matti S. Childhood caries is still in force: A 15-year follow-up. *Acta Odontol Scand*. 2008;66(3).
- > Monda M, Costacurta M, Maffei L, Docimo R. Oral manifestations of eating disorders in adolescent patients. A review. *Eur J Paediatr Dent*. 2021 Jun;22(2):155-158. doi: 10.23804/ejpd.2021.22.02.13.
- > Mourad MS, Brendebach J, Alkilzy M, Splieth CS. Choosing a paediatric dentist: Factors influencing parents' decision. *Eur J Paediatr Dent*. 2020 Mar;21(1):74-79. doi: 10.23804/ejpd.2020.21.01.15.
- > Moynihan PJ, Kelly SAM. Effect on caries of restricting sugars intake: Systematic review to inform WHO guidelines. Vol. 93, *Journal of Dental Research*. 2014.
- > Ozgul BM, Sakaryali D, Senirkentli GB, Tirali RE, Cehrelli SB. Do really parents brush their children's teeth better? *Eur J Paediatr Dent*. 2019 Dec;20(4):325-329. doi: 10.23804/ejpd.2019.20.04.13.
- > Paglia L. Oral prevention starts with the mother. *Eur J Paediatr Dent*. 2019 Sep;20(3):173. doi: 10.23804/ejpd.2019.20.03.01.
- > Paglia L. The sweet danger of added sugars. *Eur J Paediatr Dent*. 2019 Jun;20(2):89. doi: 10.23804/ejpd.2019.20.02.01.
- > Paglia L. WHO: healthy diet to prevent chronic diseases and caries. *Eur J Paediatr Dent*. 2018 Mar;19(1):5. doi: 10.23804/ejpd.2018.19.01.01.
- > Paolantonio EG, Ludovici N, Saccomanno S, La Torre G, Grippaudo C. Association between oral habits, mouth breathing and malocclusion in Italian preschoolers. *Eur J Paediatr Dent*. 2019 Sep;20(3):204-208. doi: 10.23804/ejpd.2019.20.03.07.
- > Prabhu S, John J. Oral Health Education for Improving Oral Health Status of School Children -A Systematic Review. *IOSR J Dent Med Sci*. 2015;14(2).
- > Severino M, Caruso Sara, Ferrazzano GF, Pisaneschi A, Fiasca F, Caruso Silvia, De Giorgio S. Prevalence of Early Childhood Caries (ECC) in a paediatric Italian population: An epidemiological study. *Eur J Paediatr Dent*. 2021 Sep;22(3):189-198. doi: 10.23804/ejpd.2021.22.03.3.