
Eating and oral hygiene habits in a population of young adults: An observational study

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KEYWORDS

Eating disorders; Dental caries; Oral health; Tooth erosion; Xerostomia.

ABSTRACT

Aim: Eating Disorders (ED) are a group of psychological disorders affecting patients' relationship with food and their own body. In particular, they have an impact on teeth and oral mucosa and may cause dental caries, erosions, xerostomia, salivary glands modifications and perioral tissue metabolic impairment. The aim of this paper is to investigate the risk factors associated with ED in a population of young adults by considering the impact such disorders have on oral health, particularly in view of the increased rate of tooth erosion recorded in recent years.

Materials and methods: An observational study was conducted by submitting, to a population of young adults in the Brescia area, an anonymous questionnaire (39 questions) to reveal their behaviours regarding their eating habits and lifestyles. The areas investigated were oral hygiene and eating habits.

Results: A total of 212 young people were interviewed (M/F 18-25 in Brescia and its province) and the sample is at risk of developing ED in general owing to their eating habits and lifestyles: 65% of the respondents think diligently about food, and 57% of them worry about putting on weight, both these characteristics are typical to all EDs; 14% of the sample stated not eating in the company of family and friends in the way they would like out of embarrassment and shame. After eating, 8% of them "nearly always" feel remorse, and 41% "only on some occasions". After having 'transgressed', 22% will fast or go on a diet to compensate for their excesses.

Conclusions: EDs are a continually growing and evolving pathological problem. Informing and training healthcare professionals and citizens about the damage caused by EDs to the entire body could help to understand the importance of making a multidisciplinary evaluation from the outset of the problem and right from the first contact with the patient. To this end, dentists and dental hygienists are in the delicate situation of being among the first health professionals able to see early signs and symptoms of ED in the mouth and elsewhere.

Introduction

Eating Disorders (ED) (Table 1) ⁽³⁻⁸⁾, redefined in the 5th edition of DSM-5 in 2013 as "Feeding and Eating Disorders characterised by a persistent disturbance of eating or eating-related behaviour that results in the altered consumption or absorption of food and that significantly impairs physical health or psychosocial functioning", have been for some years subject to increasing attention by the scientific world and the community of health and social workers owing to their increased spread and complex multifactor aetiology. According to the latest epidemiological findings, in Italy ⁽¹⁾ as in the rest of the Western world ⁽²⁾, the prevalence and incidence of ED are increasing by pathology, gender (Figure 1) and age (Figure 2). Affecting about 3 million people in Italy ⁽¹⁾, the problem is more related to adolescents and young

women (onset between 12 and 25 years of age) than men, although records show an increase among men and extending into subjects over the age of 40.

EDs are disorders of psychiatric origin that have multiple potential causal and risk factors, including the modern day idealisation of thinness and physical shape. Weight control is increasingly achieved by counterbalancing methods such as self-induced vomiting, laxatives, diuretics and physical hyperactivity ⁽²³⁾. In Italy, 17% of adolescents aged 11 to 14 years and 27% of those aged 15 to 18 have embarked on a slimming diet, often self-prescribed and even when unnecessary ⁽¹⁾. Moreover, there are the social pressures on eating practices, such as extreme food choices like veganism or erroneous fads of consuming foods considered healthy, including beverages (such as 'sports' drinks, but also fruit juices) with a high erosive potential ⁽¹²⁾, without forgetting the

Anorexia Nervosa (AN)	Pathological pursuit of thinness (obsessive fear of getting fat, worries about weight and physical shape) which manifests itself in restrictive and non-restrictive forms
Bulimia Nervosa (BN)	Episodes of binge eating usually followed by compensatory behaviours
BED (Binge Eating Disorder)	Recurring episodes of binge eating without regular compensatory actions
EDNOS (Eating Disorder Not Otherwise Specified)	Eating Disorders that do not meet the criteria of the previously characterised categories, with atypical disorders, sub-threshold disorders, specific symptoms and conditions with insufficient information
Other Specified Feeding or Eating Disorders	Diagnostic classification that includes: - Atypical AN (normal weight) - Low frequency and/or short-lived BN - Low frequency and/or short-lived BED - Purging disorder - Night-Eating Syndrome (NES)
Pica	Ingestion of non-nutritive and non-food substances (e.g. soil, paper, chalk, soap, hair, rubber, metal, lipstick, fabric, stones, coal, clay, starch, ice)
Rumination Disorder	Repeated regurgitation of food, re-chewing and swallowing or spitting out
Avoidant/Restrictive Food Intake Disorder	Persistent inability to consume adequate nutrition and/or energy. Diagnostic category that includes: - Muscle dysmorphia - Orthorexia
Disorders not officially classified in the EDs	Drunkorexia Veganism, vegetarianism, raw foodism, fruitarianism Diabulimia Pregorexia

Table 1 The eating disorders defined in DSM-5 (2013)

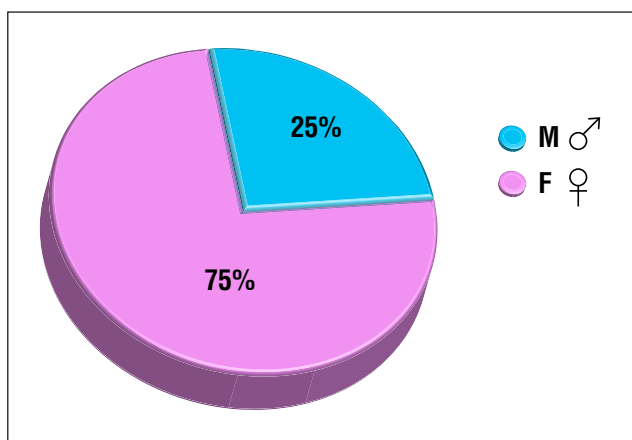


Figure 1 Distribution of ED by gender

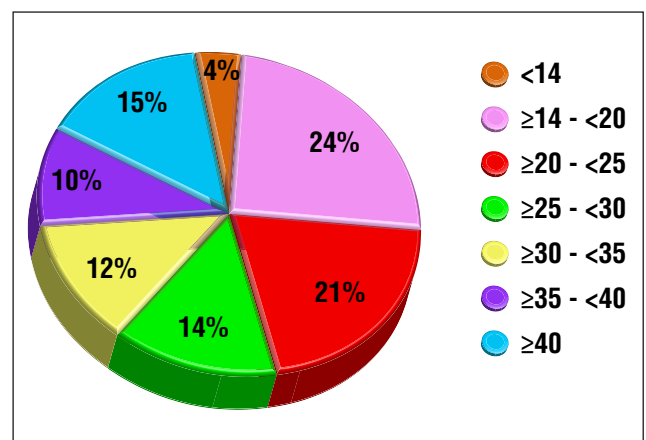


Figure 2 Distribution of ED by age

highly popular “ritual” of the aperitif. All this strongly impacts the entire body and especially the oral cavity, not just owing to gastric acids passing through the mouth (in EDs involving self-induced vomiting), but also for the ingesting of acidic drinks and foods, the cause of caries, dental erosion and other sometimes severe complications (Table 2) (10, 11).

Also dental erosion seems to have increased in recent years (13), particularly among adolescents in which a prevalence ranging between 22% and 29% is reported (13-20). In 2008, the prevalence of erosion in Norwegian 18-year-olds was 38% while by 2012,

in the 16 to 18 age group, it had grown to 59% (13, 14). In a multicentre study on young adults (aged 18-35) in Europe, the figure is >50% (22), while similar figures have been found in other countries (15-20). Furthermore, it has recently been reported that, among Swedish 20-year-olds, the prevalence of this problem is as high as 75% (21).

It is therefore important for dentists and dental hygienists to recognise early signs and symptoms, not just to put the correct and timely treatment in place but also to possibly be able to detect a disease that patients generally tend to hide.

Cause	Oral complications	Description
Exposure to stomach acids from vomiting	Dental hypersensitivity	High sensitivity to heat and cold
	Dental exposure	Consequence of the total loss of enamel by erosion/abrasion
	Pulpitis	Loss of enamel and underlying dentin, exposing the pulp tissue
Exposure to vomit acids, abuse of laxatives and antidepressants	Perimolysis	Enamel loss of chemical origin
Vomit, abuse of laxatives and antidepressants	Xerostomia	Dry mouth
Vomit, abuse of laxatives and antidepressants, excessive consumption of carbohydrates	Caries	Destructive process of multifactor aetiology, affecting the hard tissue of the tooth
Imbalances and deficiencies in diet, stress, immune deficiency, predisposition	Aphthae (mouth ulcers)	Lesions of the non-keratinized oral mucosa
	Herpes labialis	Infectious disease caused by herpes simplex virus
Exposure to vomit acids, excessive consumption of carbohydrates	Parotid gland hypertrophy	Enlargement of the parotid salivary glands
Alcohol abuse, gastro-oesophageal reflux, vitamin deficiency	Glossitis	Inflammation of the tongue resulting in redness, swelling and altered perception of flavours
Pharmaceuticals, iron and vitamins deficiency	Angular cheilitis	Inflammation at the corners of the lips
Self-induced vomiting with objects, excessive consumption of food in a short time	Traumatic lesions	Lesions in the mucosa, particularly in the palate

Table 2 Oral complications of ED

The purpose of this paper is to investigate the risk factors for ED-related oral cavity pathologies in a young adult population in the Brescia area (Northern Italy).

Materials and methods

It was decided to set up an observational study to investigate the extent of food habits that can be related to EDs.

All the subjects in the sample were young adults, of both genders, aged from 18 to 25, living in Brescia and its province. Exclusion criteria were ages <18 and/or >25 and not being resident in Brescia or its province.

A questionnaire was supplied in anonymous form and delivered both on paper at the Dental Clinic of Brescia University and via email and a social network (Facebook) between January and August 2015.

When the questionnaires were returned, the data were tabulated in a multimedia Excel spreadsheet.

The questionnaire consisted of 39 questions (Figure 3) to highlight behaviours regarding eating habits and lifestyles (oral hygiene, eating habits and physical activity). Two theme areas are focused.

- Oral hygiene: this section included 6 questions about the oral care products used at home, dental sensitivity, daily frequency of brushing teeth, and the frequency of examinations by dentists and/or dental hygienists;

- Eating habits: the same section included numerous questions (from no. 7 to no. 31) to reveal the type of diet, the frequency of consuming certain foods, the respondents' relationship with particularly high calorie foods and with dietary foods, their attitude to food, and the regularity of "unhealthy" behaviours such as having aperitifs and fasting.

Results

The analysis was carried out on 212 questionnaires correctly filled by young adults aged 18 to 25, resident in Brescia and its province, by means of graphic and numerical processing using Microsoft Office Excel 2010.

Oral hygiene

71% of subjects consider their oral hygiene to be good, 25% sufficient, and the other 4% consider it poor.

When asked "Do you regularly go to the dentist/dental hygienist?", 76% answered yes while 24% do not systematically have checkups by the dentist and/or dental hygienist. Investigating the frequency of these examinations, it emerged that 48% of the sample go to a dentist every 6 months, 25% once a year, 2% after more than a year, and 13% did not respond; 12% of respondents only go to dental surgeries on need (such as pain or abscess).

As regards oral hygiene habits (Figure 4), 40% of respondents use an electric toothbrush, 50% use

only a manual toothbrush, while the remaining 10% alternate between manual and electric toothbrushes. Interdental brushes and dental floss are used by 4% and 59% of the respondents respectively, 39% use mouthwash, while a very small percentage of respondents use whitening products (1%).

The information processed showed that 68% of the sample has dental hypersensitivity, of which 16% often and 52% rarely.

Eating habits

From the data obtained (Figure 5) it emerges that:

- 40% of the sample eat citrus fruits often, 54% rarely and 7% never;
- fruit juices are consumed often in 40% of cases, rarely by 50% and never by the remaining 10%;
- energy drinks are often consumed by 3% of respondents, rarely by 33% and never by the remaining 64%;
- carbonated drinks are often consumed by 30% of the people, rarely by 58% and never by 12% of them;
- alcoholic drinks (beer, wine, cocktails) are often consumed by 35% of subjects, rarely by 48% and never by the other 17%.

Only 40% frequently consume fruit and vegetables, 41% rarely and 7% never. Most of the sample does so because fruit and vegetables are low in calories (36%) and for the nutritional properties (21%), more than for any real desire or pleasure in eating them (42%).

It also resulted that 41% of subjects rarely or never eat sweet foods, 46% often or always avoid high-carbohydrate foods, and 65% avoid fats and calories. Conversely, those that “never or only rarely” avoid eating sweet foods, carbohydrates and high-fat, high calorie foods account for 59%, 54% and 35% of the sample respectively.

There is also a clear distinction between those who prefer fruit, vegetables or yogurt for in-between meals (45%) and others (52%) who prefer unhealthy snacks, to which is added 3% of subjects who eat large quantities of unhealthy foods at snack time.

There are plenty who skip the main meals: only 26% of subjects never skip a meal, while the remaining 74% skip lunches and dinners owing to lack of time (32%), lack of appetite (20%), feeling guilty after “bingeing” (5%), to lose weight faster (15%) and knowing they’ll be having a large lunch/dinner later (2%). There are young people who do not eat despite having a real appetite: always (19%), often (9%), rarely (54%); only 18% always eat when they feel hungry.

Paying attention to the calories in food consumed is a prerogative of 39% of the young adults questioned, while 33% show little interest in the calories in food and 28% of them do not worry.

The answers to the question “Do you eat dietary foods?” show that frequent eating of dietary foods is a habit of 19% of the sample, while 81% of the respondents are split equally between those who turn to low calorie foods only rarely (40%) or not at all (41%).

When asked “Have you embarked on diets in your life?”, 52% of the sample said no, alongside 25% who said they do so often or very often and the remaining 25% who rarely go on a diet. Specifically, the tendency is to go on “do it yourself” diets (36%) or food regimes impelled by intolerances (36%). However there are those who opt for balanced diets and those advised by dieticians and dietologists (15%), or those who reduce their calorie intake to a minimum (6%) or fast (7%) to lose weight quicker. There were no cases of hyper-protein diets.

For some of the people interviewed, eating is not a pleasure: 7% of them often feel guilty after a meal, 41% of them only in certain circumstances, and the remainder (52%) have no remorse after eating. Lapsing on occasions of large, high calorie meals impels 22% of the sample to fast afterwards or to reduce their usual calorie intake to compensate for the excess of the previous meals. Together with those who never lose control over their food (10%) there are those who, after a lapse, will binge even more (7%) because the error has now been made, and the majority (61%) who continue to eat as much as usual. From the questionnaire it can be seen that 14% of the sample has difficulty, feels uncomfortable, embarrassed or do not eat as they would like when in other people’s company, whether they are strangers, friends or even close relatives, preferring instead to eat in secret. However, for 86% of young adults there is no difference between shared meals and solitary meals.

Among the many habits of young people, one particularly standing out is that of having aperitifs (Figure 6), which takes place weekly among 56% of subjects (4% of them more than 3 times a week; 2-3 times a week in 19%, and once a week for 33%). For 41% of respondents it is an occasional habit, while 3% are not interested in this trend. These subjects often do not eat during “happy hour”, for a variety of reasons. The questionnaires analysed reveal about this population that: 10% are satiated by the cocktails and do not feel hungry, 5% are sufficiently inebriated to no longer think about being hungry, 10% do not want to have additional calories over the already plentiful ones in alcohol, 56% will be going to eat a meal after their aperitif, 1% hope they will be more likely to vomit, and 18% state they do not like or are intolerant to the foods presented.

A further bad habit of these young adults is to have a midnight snack: 14% of the respondents do so often

ANONYMOUS QUESTIONNAIRE FOR EVALUATING EATING HABITS

1. **How do you consider your oral hygiene?**
 - good
 - fair
 - poor
 - don't know
2. **How many times a day do you brush your teeth?**
 - 1
 - 2
 - 3
 - more
3. **Which tools do you use for your oral hygiene? (more than one answer accepted)**
 - manual toothbrush
 - electric toothbrush
 - mouthwash _____ (which one?)
 - dental floss
 - interdental brush
 - whitening products
4. **Do you regularly go for checkups to the dental hygienist and/or dentist?**
 - yes
 - no
5. **If YES, how often?**
 - every 6 months
 - every 12 months
 - more than one year
 - other (specify) _____
6. **Do you suffer from sensitive teeth?**
 - very often
 - often
 - rarely
 - never

7. **Do you sometimes eat or drink the following foods/beverages, even in small quantities?**

	often	rarely	never
-Citrus fruits (e.g. lemon, orange, grapefruit)	0	0	0
-Fruit juices	0	0	0
-Energy drinks	0	0	0
-Carbonated drinks	0	0	0
-Alcoholic drinks (beer, wine, cocktails)	0	0	0

8. **How often do you eat or drink each food/beverage?**

	2-3 times a day	once a day	at least 3-4 times a week	at least once-twice a week	less than once a week
-Citrus fruits	0	0	0	0	0
-Fruit juices	0	0	0	0	0
-Energy drinks	0	0	0	0	0
-Carbonated drinks	0	0	0	0	0
-Alcoholic drinks	0	0	0	0	0

9. **Do you eat fruit and vegetables?**
 - always
 - often
 - rarely
 - never
10. **You eat fruit and vegetables because:**
 - you like them and they do you good
 - you don't like them much but they're low calorie
 - you don't like them much but they're good for you
11. **Do you avoid sweet foods?**
 - always
 - often
 - rarely
 - never
12. **During a day, do you have:**
 - 3 meals and occasionally a snack?
 - 3 meals and usually some snacks?
 - 2 meals and some snacks?
 - lots of snacks and skip regular meals?
 - are there periods when you eat continually without having regular meals?
13. **Your snacks and in-between means are usually:**
 - healthy (fruit, vegetables, yogurt)
 - not healthy (snacks, filled croissants, biscuits) but in only moderate quantities
 - not healthy and in large quantities
14. **When you skip meals it's because of:**
 - lack of time
 - no appetite
 - feeling guilty after large meals/bingeing
 - to lose weight faster
15. **You think about food:**
 - always
 - often
 - rarely
 - never
16. **When you're bored:**
 - you don't normally eat
 - you sometimes eat
 - you often eat
17. **When you eat something it's usually because:**
 - you're hungry
 - you eat out of habit without really feeling hungry
 - you eat because you love it, even if already full
18. **You sometimes don't eat even though you're hungry:**
 - always
 - often
 - rarely
 - never
19. **You particularly avoid high-carbohydrate foods (bread, pasta, sweet foods):**
 - always
 - often
 - rarely
 - never
20. **You avoid foods particularly high in fats and calories (crisps, snacks, croissants...):**
 - always
 - often
 - rarely
 - never

- 21. You take note of the calories in the food you eat:**
- always
 - often
 - rarely
 - never
- 22. You eat dietary foods:**
- always
 - often
 - rarely
 - never
- 23. During your life you have embarked on diets:**
- very often
 - often
 - rarely
 - never
- 24. Your usual type of diet is:**
- "do it yourself"
 - restrictive
 - fasting to lose weight quicker
 - balanced, on the advice of a specialist
 - high protein
 - other (specify) _____
- 25. If you lapse and have a large meal or high calorie foods:**
- you never lose control over food
 - you eat even more, now that you've failed
 - after the lapse, you fast or go on a diet to compensate for the excess in the previous meal
 - after the lapse, you eat as normal
 -
- 26. After eating:**
- you don't feel guilty at all
 - sometimes you feel guilty
 - you nearly always feel very guilty
 -
- 27. When you are with others (friends, family...):**
- you eat like when you are alone
 - you don't eat as much as you would like
 - you don't eat much since you're embarrassed to eat in front of others
 - you don't eat much: you are so ashamed of eating too much that you eat in secret, where no-one can see you
 -
- 28. The aperitif is a habit repeated:**
- more than 3 times a week
 - 2-3 times a week
 - once a week
 - occasionally
 - never
- 29. When not eating anything while having an aperitif, usually it's because:**
- the cocktails fill you up and you're no longer hungry
 - you're sufficiently inebriated to not think about hunger any more
 - you don't want any more calories than the plenty already in alcohol
 - you will be eating a meal after the aperitif
 - if you don't eat then there's more chance of "vomiting up" the alcohol ingested
- 30. You eat at night:**
- very often
 - often
 - rarely
 - never
- 31. You eat at night because:**
- you skipped dinner, so you're hungry
 - you ate nothing all day, so you're hungry
 - you've drunk a lot of cocktails, so you're hungry
 - you suffer from insomnia, so you eat to "pass the time" even if not hungry
 - other (specify) _____
- 32. You do intense physical exercise to:**
- burn calories, lose weight
 - for lifestyle
 - for fun, hobby
 - other (specify) _____
- 33. You exercise:**
- 5 or more times a week
 - 3-4 times a week
 - 1-2 times a week
 - ≤ 3 times a month
 - occasionally
 - never
- 34. When you can't exercise:**
- you don't care much
 - you feel guilty
 - you feel guilty and will definitely make up for it on a day off
- 35. Together with physical exercise:**
- you follow a restrictive diet
 - you follow a specific diet
 - you eat healthily, allowing yourself the occasional lapse
 - you often eat unhealthy food (you take exercise so you can allow yourself to eat such food)
- 36. When you think about your appearance and weight:**
- you are satisfied
 - you don't worry about them
 - you feel disappointed
 - you are very ashamed and disgusted
- 37. You weigh yourself:**
- every day
 - 2-3 times a week
 - once a week
 - monthly
 - rarely
 - never
- 38. If you put on weight:**
- you don't worry much
 - you try to get back to your previous weight, avoiding "junk food" and taking exercise
 - the quickest solution is fasting for a few days
 -
- 39. You're afraid of getting fat:**
- always
 - very often
 - often
 - rarely
 - never

Figure 3 The questionnaire

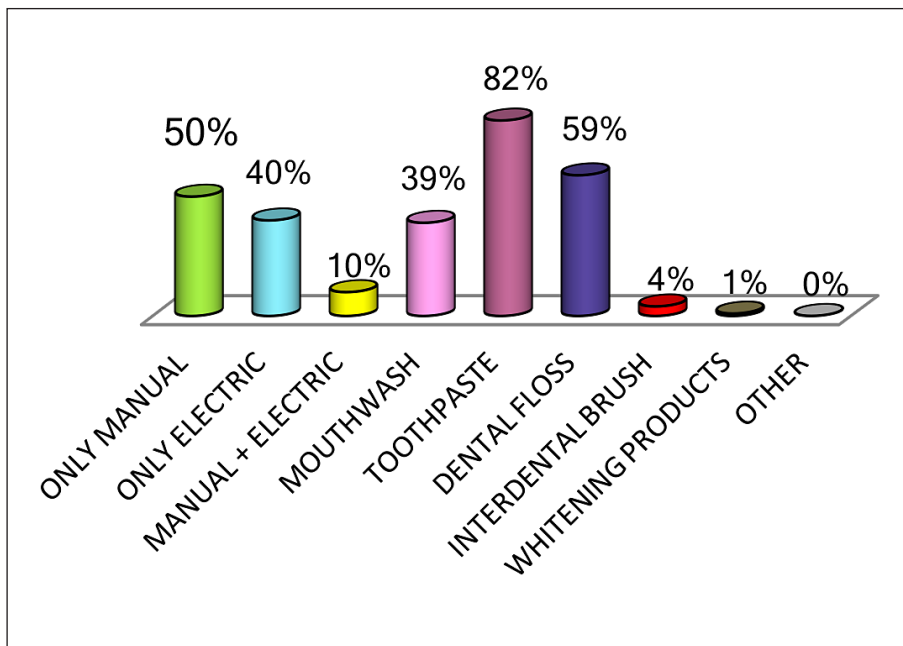


Figure 4 Tools used for oral hygiene

or very often, 63% never do so, and 25% only rarely. Eating at night can be due to insomnia (4%), to having not eaten anything all day (7%), “alcohol-induced” hunger (8%), or hunger because of having skipped supper (17%); 60% did not give an answer to this question.

Discussion

EDs are an insidious problem because they can be misconstrued as the general fashion for health and fitness, and those that suffer from them only belatedly get any treatment, with the danger of the disorder becoming chronic.

The 212 young adults interviewed, owing to their dietary habits and lifestyles, form a sample at risk of developing eating disorders in general and of developing erosive lesions in their hard dental tissue.

Oral hygiene

The first discrepancy found in the results analysed is between the 71% of subjects who consider their oral hygiene at home as ‘good’ and the 48% who regularly go to the dentist/dental hygienist every 6 months: it can therefore be said that 23% of subjects have a skewed perception of their oral care.

From the investigation of home oral hygiene tools, it is clear that, despite all of them using toothbrushes (manual, electric or both), only a portion of the sample carries out interdental cleaning by using interproximal tools: 4% use the interdental brush and 58% state that they floss their teeth.

There is thus the second disparity between the 71% who believe they have good oral hygiene, while only 62% clean proximal spaces.

Eating habits

The purpose of this paper has been to investigate the effect of incorrect eating habits related to oral health, asking the sample how frequently they consume foods or drinks whose acidity can be harmful to the oral cavity (Figure 5).

Frequent consumption of acidic foods such as citrus fruits, fruit juices, carbonated drinks, and alcoholic and energy drinks, emerging from the statistical results, contributes to bringing about this problem of dental erosion which consists of the loss – by chemical origin – of the tooth’s hard tissue (enamel/dentine). Although there are many factors in the aetiology of dental erosion, “it is not possible to diagnose the cause by just evaluating the appearance of the lesions without an anamnesis that includes the dental history and eating habits of the patient”. Diet and lifestyle form the two fundamental components of the extrinsic causes of dental erosion. The recent increase in the consumption of acidic fruit, fruit juices, and carbonated and alcoholic drinks is the main cause of dental erosion observed in adolescents. Young males are more affected by erosion than girls, and the frequent consuming of soft drinks is responsible for severe dental erosion in 22.3% of young men aged 18-19.

The different ways of eating, drinking and swallowing (sipping, sucking, drinking through a straw) affect the contact of acidic foods and drinks with teeth and obviously have a variable clinical impact.

Other particular lifestyles can be listed among the risk factors responsible for dental erosion, and these include:

- the increase in the number of snacks consumed, with a reduction in the number of main meals: 3%

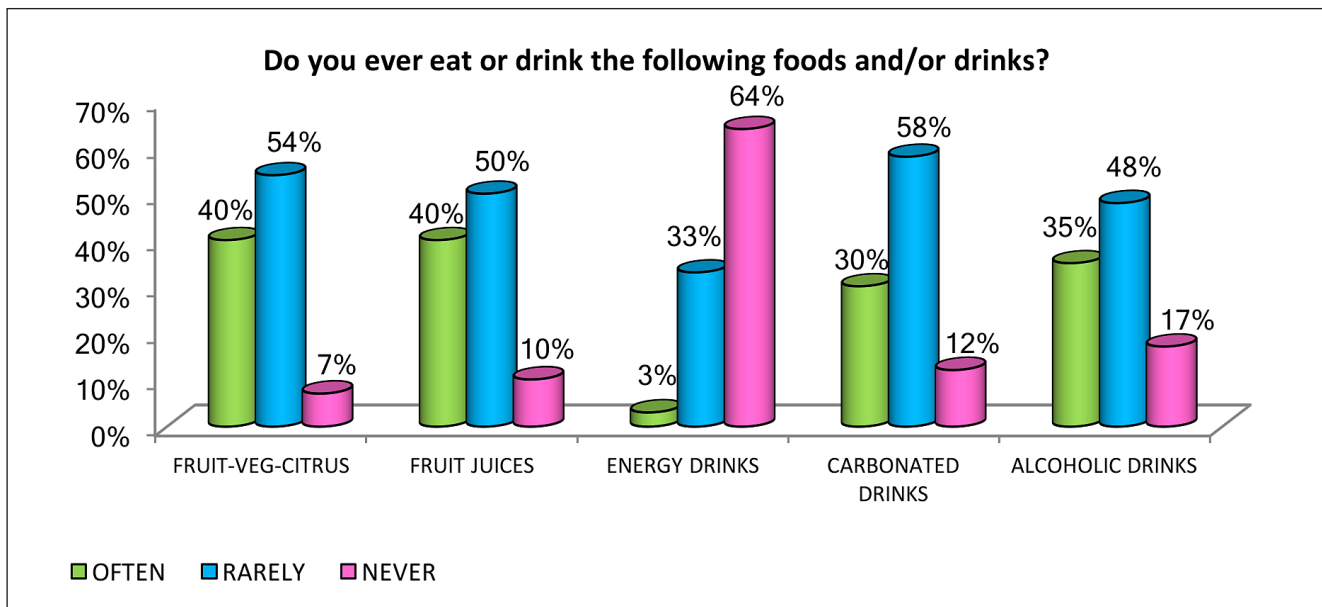


Figure 5 Frequency of having acidic beverages

of the respondents have many snacks, without eating meals;

- although regular physical exercise is very beneficial to health, it also means consuming an increased amount of “sports” drinks: 10% of the sample take hard physical exercise 3 to 5 times a week;
- the use of drugs causes a reduced salivary flow, dry mouth and the subsequent consumption of drinks with low pH (but this area was not investigated in the questionnaire).

Investigating the nutritional habits of the sample, it emerges that, although there are many who only rarely or never eat sweet foods (41%), high-carbohydrate foods (46%), foods high in fats and calories (65%), there are many who do not avoid such foods: respectively 59%, 54% and 35%. This shows modern society in its twofold essence: we live in a world that, on the one hand, exalts thinness, often extreme, as an ideal of beauty, while on the other it floods the market with unsuitable food temptations.

Another important consideration is that 36% of the young adults interviewed state they eat fruit and vegetables because they are low in calories. This is a dangerous attitude because it can trigger the damaging mechanism typical of AN and BN where the person, frustrated with his/her body, embarks on rigid diets; in the case of anorexia, the restriction becomes increasingly rigid, while with bulimia, the increase in biological stimuli arising from fasting leads to a loss of control, manifesting itself in the form of recurrent bingeing.

The worrying figure consists of the 65% of the young people interviewed who diligently think about food and of the 57% who are afraid of getting fat: these are

both recurring features in all EDs. Weight and food become the two key points for all those who have an eating disorder, whatever form it takes.

It also resulted that 14% of the sample also stated that they do not eat in the company of relatives or friends in the way they would like (having less or more food than usual) out of embarrassment and shame. The same occurs in the people affected by ED, who often avoid meal invitations out of fear of losing control or being observed by others. Together with the embarrassment of eating with others, there is also a strong feeling of post-meal guilt that not only arises after having eaten copiously but even when consuming small amounts of food. Investigating this pathological behaviour in the sample, it emerges that:

- after having eaten, whatever the amount, 8% of them “nearly always” feel remorse, and 41% “only on some occasions”;
- after having lapsed by eating large meals, 22% stop eating or go on a diet to compensate for the excess of the previous meal, but 7% eat even more because, by now, the “damage is done”.

Another point worth noting is the growing habit of the aperitif: according to the Istituto Superiore di Sanità, alcohol consumption is increasingly separated from meals, and alcoholic beverages other than wine are becoming more widespread (a moderate consumption of wine at meals has always been typical of the Mediterranean diet).

There are about 300,000 adolescents in Italy, mainly aged 12 to 17, who do not eat to avoid getting fat and to resemble the male and female models shown in adverts and by the fashion world, but who drink a lot (drunkorexics). The literature reports that the habit of

The aperitif is a habit repeated:

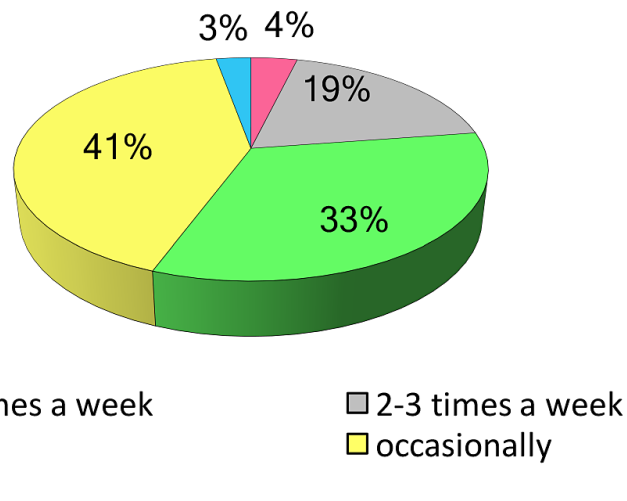


Figure 6 Frequency of having aperitifs

the aperitif and consumption of alcoholic beverages is a risk factor as significant for ED as fasting, body dysmorphia, bingeing and intense, obsessive physical exercise. Among the emerging forms of ED, together with drunkorexia and muscle dysmorphia, there is also the “night eating syndrome” (NES) which is described by experts as the combination of an ED, disturbed sleeping and mood. This affects 1.5% of the Italian population, of which 40% are males and 60% are females. Since one of the diagnostic criteria for NES is frequent reawakening and night-time meals, together with hyperphagia and morning anorexia, the frequency of snacks during the night by the sample was investigated in order to identify a further factor predisposing and predictive of eating disorders. It emerges that 12% often or very often eat in the night, because of having skipped dinner (17%), not having eaten all day (7%), having drunk too much alcohol (8%) or because of suffering from insomnia (4%).

Clinical recommendations

The healthy young adults are patients who should be advised to undergo follow-up checks every 6 months in order to prevent and take early action on any abnormalities, damage and lesions in the soft and hard tissues of the mouth.

At all ages, the mouth plays an essential role in interpersonal relationships and facial aesthetics: if action is not promptly taken, the deterioration of the oral cavity's functionality and aesthetics contributes to worsen the sense of self-esteem characteristic of these subjects and to further diminish their ability to control their eating.

The study of risk factors in ED is crucial for developing prevention programs that are able to reduce the rate and prevalence of these pathologies. The treatment approach to ED therefore involves medical figures who take care of the body (gynaecologists, nutritionists, dentists, dental hygienists, cardiologists) and the mind (psychiatrists, psychologists): if the psychological problem is not identified and treated, the medical history and dental health of the patient deteriorate as the eating disorder progresses. It is therefore necessary to schedule oral hygiene sessions and follow-ups after 4-6 months in the case of patients with unhealthy living and eating habits precisely because of the many risk factors to which they are exposed. In this way it is possible to detect the lesions early and to take prompt action before the situation worsens (10).

The dental hygienist therefore has the important task of setting out an oral hygiene protocol (Table 3).

Conclusion

Eating Disorders are a pathological situation in continuous growth and evolution. In this context, the lifestyles emerging from the investigation on young people in Brescia and its province confirm the presence of risk factors for developing EDs and we have been able to reveal the diffusion of lifestyles that, while not pathological, certainly favour the onset of erosion of the hard tissue of teeth.

As regards EDs, informing and training healthcare professionals and citizens about the damage caused by EDs to the whole body could make it possible to understand the importance of a multidimensional and multidisciplinary evaluation right from the outset of the problem and right from the first contact with

Oral hygiene protocol for patients affected by ED	
Global observation of patient	The observation of the patient who attends an OH session enables the dental hygienist to get an alarm bell warning from the following signs. - Anorexia: dry, thin hair, widespread body hair, yellowish palms and soles of feet, cold hands, abdominal swelling, extreme thinness, weakness, fatigue under the minimum effort, intolerance of cold, slowed movements, oedema around eyes and ankles. - Bulimia: dry skin, Russell's sign (calluses and swelling on the back of hands caused by self-induced vomiting), conjunctival haemorrhages, increased weight, swelling of abdomen, hands and feet
Inspection of oral cavity	Attentive and meticulous objective examination. - Extraoral: observing the face to note asymmetries, skin lesions, oedema, alterations to the TMJ and the submandibular lymph nodes, and other abnormalities. - Extra-intraoral: examination of the buccal mucosa and the vestibules. - Intraoral: examination of the saliva glands, the tongue, the oral cavity floor, of the hard palate, the soft palate, the soft tissues (mucosa, gums) and hard tissues (teeth) of the oral cavity.
Home oral hygiene motivation and instruction	The dental hygienist should motivate and instruct the patient in correct OH at home as follows - Toothbrush: manual or electric with medium or soft bristles depending on the patient's sensitivity - Toothpaste: low abrasiveness (Relative Dentin Abrasivity <50), containing fluoride, calcium and phosphate to counter the sensitivity - Mouthwash and gel: fluorinated recommended - Provisional methods in case of vomiting, wait at least 30 minutes before brushing teeth, rinse with water or water and bicarbonate - Xerostomia: use oral emollients and drink plenty of water
Eating habits motivation and instruction	- Reduce the consumption of acidic foods (tomatoes, citrus fruits) - Reduce the consumption of sweet foods and carbohydrates - Reduce the consumption of juices, soft drinks, and alcoholic and energy drinks - Consume acidic foods and carbohydrates, and also soft drinks and juices, even in large quantities, but concentrating them in a single meal or moment - Wait at least 1 hour before brushing teeth after having eaten or drunk (sugary beverages, soft drinks, juices...) - Eat fruit and vegetables every day to counter the effect of vitamin deficiency
Causal treatment	In the case of ED, the operating protocols are no different from normal professional oral hygiene practices - Monitoring the degree of erosion, salivary flow level and the pH - Photographs - Periodontal indices: plaque, tartar and bleeding - Removal of plaque and tartar above and below the gums - use of low abrasion prophylaxis pastes for polishing, with rubber cups for the removal of residues of plaque and extrinsic stains - Topical fluoride application
Follow-up	Scheduling of periodic professional OH sessions every 2-4 months

Table 3 Oral hygiene protocol for patients affected by ED

the patient. To this end, the dentist and, probably even more so, the dental hygienist are in the delicate position of being among the first health professionals to be able to detect early signs of a pathology that patients generally tend to deny and to hide. The dental hygienist therefore has the important task of observing patients globally and inspecting their oral cavities, encouraging them to give up bad eating habits and to replace them with a balanced and healthy diet for the oral cavity, motivating them and instructing them in correct oral hygiene at home, implementing professional oral hygiene protocols designed to preserve and maintain a stable condition of oral health.

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