

Community

Lec. 6 Indices used for dental caries assessment

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Dental Caries:

A progressive irreversible microbial disease affecting the hard parts of the tooth. It is the most prevalent chronic disease affecting the human race. Once it occurs, its manifestations persist throughout life even the lesion is treated. It usually begins soon after the teeth erupted into the oral cavity. So, it is a post eruptive disease. It affects persons both genders, all races, all ages, all socioeconomic groups.

1- Indices used for coronal caries.

A- Permanent teeth.

B-

Primary teeth.

2- Indices used for root caries .

*Permanent teeth index: Decayed-Missing-Filled Index (DMF) which was introduced by Klein, Palmer and Knutson in 1938 and modified by WHO :

1--DMF teeth index (DMFT) which measures the prevalence of dental caries/Teeth.

2- DMF surfaces index (DMFS) which measures the severity of dental caries .

The components are:

D component:

Used to describe (Decayed teeth) which include:

1. Carious tooth.
2. Filled tooth with recurrent decay.
3. Only the root are left.
4. Defect filling with caries.

5. Temporary filling.

6. Filled tooth surface with other surface decayed .

M component:

Used to describe (Missing teeth due to caries) other cases should be excluded these are:

1. Tooth that extracted for reasons other than caries should be excluded, which include: a-Orthodontic treatment.

b-Impaction.

c-Periodontal disease.

2. Unerupted teeth.

3. Congenitally missing.

4. Avalsion teeth due to trauma or accident .

F component:

Used to describe (Filled teeth due to caries). Teeth were considered filled without decay when one or more permanent restorations were present and there was no secondary (recurrent) caries or other area of the tooth with primary caries. A tooth with a crown placed because of previous decay was recorded in this category. Teeth stored for reason other than dental caries should be excluded, which include:

1. Trauma (fracture).

2. Hypoplasia (cosmatic purposes).

3. Bridge abutment (retention).

4. Seal a root canal due to trauma.

5. Fissure sealant.

Note :

1- A tooth is considered to be erupted when just the cusp tip of the occlusal surface or incisor edge is exposed . The excluded teeth in the DMF index are:

1- Supernumerary teeth.

2- The third molar according to Klein, Palmer and Knutson only .

2--Limitations - DMF index can be invalid in older adults or in children because index can overestimate caries record by cases other than dental caries .

Principle and rules in recoding:

1-DMFT:

- 1- A tooth may have several restorations but it counted as one tooth, F.
- 2- A tooth may have restoration on one surface and caries on the other, it should be counted as decayed D .
- 3- No tooth must be counted more than once, D M F or sound .

2-DMFS Each tooth was recorded scored as 4 surfaces for anterior teeth and 5 surfaces for posterior teeth.

☐ Retained root was recorded as 4 D for anterior teeth, 5 D for posterior teeth.

☐ Missing tooth was recorded as 4 M for anterior teeth, 5 M for posterior teeth.

☐ Tooth with crown was recorded as 4 F for anterior teeth, 5 F for posterior teeth .

Calculation of DMFT \ DMFS: 1- For individual
2- For population $DMF = D + M + F$ Mean DMF =
Total DMF Total No.
of the subjects examined

Maximum score:

Zero 1- DMFT = 32

$4 + 20 * 5 = 48 + 100 = 148$ or 128

Minimum score =

2- DMFS = 12 *

* Primary teeth index :

1 -dmft / dmfs

= 88

Maximum scores: dmft = 20 , dmfs

2- deft / defs , which was introduced by Gruebbel in 1944

d- decayed tooth .
extraction .

e- decayed tooth indicated for
f- filled tooth .

3- dft / dfs

In which the missing teeth are ignored, because in children it is difficult to make sure whether the missing tooth was exfoliated or extracted due to caries or due to serial extraction .

Mixed dentition:

Each child is given a separate index, one for permanent teeth and another for primary teeth. Information from the dental caries indices can be derived to show the:

Q- How could you differentiate between tooth missing due to caries and due to exfoliation?

1- By age of the patient if it is near to exfoliation time or not.

2- The shape of ridge is concave in carious missing tooth and straight in exfoliated one and permanent successor may be seen.

3- DMF/dmf index is higher in association with carious missing tooth especially adjacent and the contra lateral teeth.

4- Bad oral hygiene mainly associated with carious teeth .

Q- How could you differentiate between tooth missing due to caries and due to orthodontic treatment ?

- 1- By type of teeth, in ortho. treatment most teeth should be extracted are 4,5/c, d while in carious missing teeth any teeth may be involved.
- 2- Bilateral and /or opposing missing generally associated with ortho. treatment, while in carious missing teeth it is not necessary.
- 3- DMF/dmf index is higher in association with carious missing tooth especially adjacent and the contra lateral teeth with bad oral hygiene mainly associated with carious teeth.
- 4- Crowding or appliance may be seen in ortho. treatment .

*Root Caries Index (RCI), which was introduced by Katz in 1979:

RCI is based on the requirement that gingival recession must occur before root surface lesions begin. Therefore, only teeth with gingival recession are examined.

1. All teeth are examined in both the lower and upper arch.
2. To obtain the RCI, each of the four surfaces the mesial, distal, buccal (labial), and lingual, of a root are examined for a single tooth.
3. When multiple types of root surfaces are exposed, the most severely affected root surface be recorded for that tooth .

The calculation of RCI:

$$\text{RCI} = \frac{(R-D) + (R-F)}{(R-D) + (R-F) + (R-N)} \times 100$$

(R-D) is no. of root surfaces with decay.

(R-F) is no. of root surfaces which have permanent filling.

(R-N) is the no. of sound root surfaces.

Book: Essential of Preventive and Community Dentistry