Dental Indices

Introduction

Oral health is a part of general health. Dental diseases are the most prevalent and the most neglected of all chronic diseases affecting mankind. Prevention of disease rests on knowledge of the disease occurrence, distribution, etiology, and other related factors. Epidemiological study of any disease require the condition be measured and quantified accurately based on scientific principles to understand the disease.

One of the major problem in studying dental diseases is the development of a suitable method for recording the occurrence and severity of disease. Quantitative measurement of disease most commonly relies on “index”. So, Dental index is the main tool of epidemiological studies in dental diseases to measure prevalence, incidence, and severity.

Index:

A numerical value describing the relative status of a population on a graduated scale with definite upper and lower limits, which is designed to permit and facilitate comparison with other populations classified by the same criteria and methods.

Objectives:

1. To define the specific problem under investigation.
2. To discover populations at high and low risk.
3. To increase understanding of the disease process, leading to methods of control and prevention.

Ideal properties of an index:

Ideally, an index should possess the following properties:

1- Clarity-The examiner should be able to carry out the index rules in his mind. Simplicity -The index should be easily to apply, so there is no undue time lost during examination. Objectivity -The index criteria should be clear and unambiguous.

2- Validity:

The index should be measure what it is intended to measure. So it should be correspond with clinical stages of the disease, ex. number of missing teeth in adults is not a valid measure of caries activity.
3- Reliability:
The index should measure consistently at different times and under a variety of conditions, by the same person or different persons.

4- Quantifiability: The index should be amenable to statistical analysis. So that the status of a group can be expressed by a number that corresponds to a relative position on a scale from zero to the upper limit.

5- Sensitivity:
The index should be able to detect reasonably small shifts, in either direction in the group condition.

6- Acceptability:
The use of the index should not be painful or demeaning to the subject.

**Uses of dental indices:**
1. To provide data for epidemiological studies.
2. To study and compare oral health status of individuals and population.
3. To study prevalence, incidence, and severity of disease.
4. To find out etiological and predisposing factors for the diseases.
5. For planning of oral health policy.
6. To evaluate the success and effectiveness of preventive programs.

**Classification of indices:**
Which is based upon the:

A- Direction in which their scores can fluctuate:
1. Irreversible index ............... DMF
   Index that measures conditions will not return to the normal state. Once established cannot decrease in value on subsequent examinations.
2. Reversible index ................. GI
   Index that measures conditions that can be return to the normal state. Reversible index scores can decrease or increase in value on subsequent examinations.
3. Composite index ................. PDI
   Index that measures conditions that can be return to the normal state and conditions will not return to the normal state.

B- The extent to which areas of oral cavity are measured:
1. Full mouth index ................. Dean's Fluorosis Index
   These indices measure the patient’s entire dentition.
2. Simplified index ................. CSI
   These index measure only a representative sample of teeth.
C- The entity which they measure:
   1. Disease index  .................. D M F
   2. Treatment index ................. D M F
   3. Symptom index .................. PBI

D- The special categories:
   1. Simple index  .................... CSI
      Index that measures the presence or absence of condition.
   2. Cumulative index ................ D MF
      Index that measures all the evidence of a condition, past and present.

Scales
There are three types of scales:
   1. Ordinal scale: It is a scale of measurement that lists conditions in some order. Use of this sort of scale merely attempts to order a condition progressively, without attempting to define any mathematical relation between the categories defined. For example, classifying the condition of inflammation of gingival tissues as mild, moderate, severe.

   2. A nominal scale is even less rigidly defined; it simply gives names to different conditions and therefore is not strictly a scale at all. An example, classifying the condition of gingival tissues as good, poor, fair, which merely attaches names to variously defined conditions.

   3. An interval or a ratio scale is one in which the numbers used in the measuring scale assume to have a mathematical relation to each other. In interval scale there is no true zero, ex. 0°C- temperature. While in ratio scales there is true zero point, which indicates an absence of the property measured. For example, gingival index (GI) 0= no inflammation, height and weight, and DMF index.