

Indices in Dentistry: Recitation of Oral Diseases at Numerical Value

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ABSTRACT

Background: Many researchers have toiled on various indices that have been put forth for describing oral health & diseases. This current review article emphasizes and lists out the different indices that are used regularly in screening and treatment of various oral conditions that includes caries, periodontal & gingival diseases, gingival pigmentation, tooth wear & mobility, malocclusion, in a tabulated form. Few of the recent advances on dental indices have also been enumerated in the current article.

Keywords: Index, Oral health & Conditions, Gingivitis, Periodontitis.

INTRODUCTION

A prerequisite for any epidemiological investigation is the ability to quantify the occurrence and severity of the disease. Measurement is a process of assigning values to characteristics according to a set of rules. This is facilitated through indices.

Indices used in dentistry:

An index has been defined as 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 methods¹. In order to describe gingival and periodontal disease in large populations, it is necessary to use descriptive methods that lend themselves to quantitative evaluation and electronic data processing. These are known as indices².

Objectives of an Index¹: The various objectives of indices are to increase understanding of the disease

process, thereby leading to methods of control and prevention. It attempts to discover populations at high and low risk and to define the specific problem under investigation.

Ideal Requisites of an Index⁹: The ideal requisites of an index can be enumerated as clarity, simplicity, objectivity, validity, reliability, quantifiability, sensitivity, acceptability.

Purpose and Uses of an Index³: The purpose and uses of an index can be broadly described for individual patients and in community health. In case of individual patients it provides individual assessment to help a patient recognize oral problem, reveals the degree of effectiveness of present oral hygiene practices, motivates the person in preventive and professional care for the elimination and control of oral disease and evaluates the success of individual and professional treatment over a period of time by comparing index scores.

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In case of community health it helps in showing the prevalence and trends of incidence of a particular condition occurring within a given population, provides baseline data to show existing dental health practices, assess the needs of a community and compares the effects of a community program and evaluates the results.

Various indices have been proposed in order to measure dental plaque and debris; for assessment of dental calculus; to assess gingival

inflammation and assessment of gingival bleeding; assessment of periodontal diseases; assessment of dental caries and for pit & fissure caries; for root surface caries; indices for enamel defects of tooth; indices for dental fluorosis; indices used for treatment needs assessment and to assess bone and indices used for malocclusion.

Few of the indices used to describe various oral conditions are enumerated in the tables given below.

INDICES USED FOR MEASURING PLAQUE & DEBRIS

1.	Oral Hygiene Index	John C.Greene Jack R.Vermillion	1960
2.	Simplified Oral Hygiene Index	John C.Greene Jack R.Vermillion	1964
3.	Patient Hygiene Performance Index	Podshadley A.G Haley J.V	1968
4.	Plaque Component of the Periodontal Disease Index	Sigurd P. Ramfjord	1959
5.	Shick & Ash Modification of Plaque Criteria	Schick R.A Ash M.M	1961
6.	Quigley-Hein Plaque index.	Quigley G Hein J	1962
7.	Turesky-Gilmore-Glickman Modification of Quigley-Hein Plaque index.	Turesky Gilmore Glickman	1970
8.	Plaque Index	Silness P. Loe H	1964
9.	Glass Index	Glass R.L	1965
10.	Plaque Control Record	O Leary Drake Naylor	1972
11.	Plaque Free Score	Grant Everett Stern	1979
12.	Navy Plaque Index	Grossman F.D Pedi. P.F	1970
13.	Rustogi Modification of Navy Plaque Index	Rustogi.	1992
14.	Distal Mesial Plaque Index	Cancre	1983
15.	Irritants Index	O Leary et al	1967
16.	Plaque Index	Lenox Kopizyk	1970
17.	Hygiene Analysis Index	Love et al	1975
18.	Bonded Bracket Index	Ciancio et al	1984

INDICES FOR ASSESSMENT OF CALCULUS

1.	Calculus Surface Index	Ennever J. Sturzenberger Radike. A.W	1961
2.	Calculus Surface Severity Index	Ennever.J	1961
3.	Marginal Line Calculus Index	Muhlemann H.R Villa. P	1967
4.	Calculus component of OHI-S	John C. Greene Jack R.Vermillion	1964
5.	Calculus component of the Periodontal disease index	Sigurd P. Ramfjord	1959
6.	Probe Method of Calculus Assessment	Volpe et al	1967
7.	Standardized Foil Technique (Indirect method)	Marthaler Schroeder Muhlemann	1957

INDICES USED TO ASSESS GINGIVAL INFLAMMATION

1.	Papillary-Marginal Attachment Index	Maury Massler Schour.I	1944
2.	Papillary Marginal Index	Muhlemann Mazor	1977
3.	Gingival Index	Loe.H. Silness.J	1963
4.	Gingival Index	Ramfjord	1959
5.	Gingival Score Index	O'Leary	1963
6.	Gingival Index	Suomi Barbano	

INDICES USED FOR ASSESSMENT OF GINGIVAL BLEEDING

1.	Sulcus Bleeding Index	Muhleman.H.R Son.S	1971
2.	Papillary Bleeding Index	Muhleman.H.R	1975
3.	Eastman Interdental Bleeding Index	Abrams Caton Polson	1985
4.	Gingival Bleeding Index	Ainamo & Bay	1975
5.	Gingival Bleeding Index	Carter.H.G Barnes.G.P	1974
6.	Bleeding Time Index	Nowicki	1981
7.	Quantitative Gingival Bleeding Index (QGBI)	Garg & Kapoor	1985
8.	Bleeding Points Index	Lenox Kopezyk	1973
9..	Modified Sulcular Bleeding Index	A.Mombelli M.A.Vanoosten N.P. Land	1987

INDICES USED FOR ASSESSMENT OF PERIODONTAL DISEASES

1.	Periodontal Index	Rusell.A.L	1956
2.	Periodontal disease Index	Sigurd.P Ramfjord	1959
3.	Gingival Periodontal Index	O Leary T.J.Gibson W.A. Shannon I.L.Schuessler	1963
4.	Extent & Severity Index	Carlos et al	1986
5.	Index of Alveolar Bone Loss	Day & Shourie	1949
6.	Periodontitis Severity Index	Adams; Nystrom	1986
7.	Gingival Recession Index	Stahl.S.S Morris.A.L	1955
8.	Periodontal Disease Rate Index	Sandler Stahl	1959
9.	Periodontal Screening and Recording (PSR)	AAP	1992
10.	NIDCR Protocol for periodontal Disease Assessment	NIDCR	1988
11.	Basic Periodontal Examination (BPE) Index	British Society of Periodontology	1986

INDICES USED FOR ASSESSMENT OF GINGIVAL PIGMENTATION

1.	Oral pigmentation index (DOPI)	Dummett CO, Gupta OP	1964
2.	Melanin index	Hedin CA	1977
3.	Melanin pigmentation index	Takashi et al.	2005
4.	Gingival pigmentation index	Kumar S, Bhat SG, Bhat MK	2012

INDICES USED FOR ASSESSMENT OF DENTAL CARIES

1.	DMFT Index	Henry Klein Carrole E.Palmer Knutson.J.W	1938
2.	Def index for primary dentition	Grubbel.A.O	1944
3.	Caries Severity Index	Tank Certude Strovick clara	1960
4.	Czechoslovakian Caries index	Pancova Novak Matena	1956
5.	Caries Susceptibility Index	Richardson A	1961
6.	DMF surface Percentage Index	Jager.C.L	1963
7.	Modified DMFT Index	Joseph Z Anaise	1983
8.	Dental Caries Severity Index For Primary Index	Aubrey Chosack	1985
9.	Moller's Index	Moller.I.J	1966

		Poulsen.S	
10.	Oral Health Status Index	Marcus.M Koch.A.L Gershen.J.A	1980
11.	Functional Measure Index	Sheiham.A Maizels.J Maizels. A	1987
12.	Dental Health Index	Carpay J.J Nieman F.H. Konig.K.G Felling.A.J.A	1988

FOR PIT & FISSURE CARIES

1.	Anglo Saxon System	Horowitz H.S.	1972
2.	European system	Backer-Dirks O Houwink B Kwant.G.W	1961

FOR ROOT SURFACE CARIES

1.	Root Caries Index	Ralph.V.Katz	1979
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INDICES FOR ENAMEL DEFECTS OF TOOTH

1.	Indice for developmental Defects of Enamel	Ainamo.J T.W.Cutress	1977
2.	Developmental Defects of Enamel Index	FDI – Commission on Oral Health	1982
3.	Modified Developmental Defects of Dental Enamel Index (Modified DDE)	Clarkson J.J O'Mullane Dm	1989

INDICES FOR DENTAL FLUOROSIS

1.	Dean's Fluorosis Index	Trendley H.Dean	1934
2.	Community Fluorosis Index	Trendley. H.Dean	1935
3.	Tooth Surface Index of Fluorosis	Herschel.S Horowitz William. S Driscoll	1984
4.	Young's Classification of enamel Fluorosis	Young.M.A	1973
5.	Thylstrup-Fejerskov classification of Enamel Fluorosis	Thylstrup.A Fejerskovo	1978
6.	Murray and Shaw's classification of Enamel Fluorosis	Murray.J.J Shaw.L	1979
7.	Simplified Fluoride Mottling Index	Rahmatulla.M Rajasekhar.A	1984
8.	Fluorosis Risk Index	David.G Fendrys	1990

INDICES USED FOR TREATMENT NEEDS ASSESSMENT

1.	Community Periodontal Index of Treatment Needs	WHO & FDI Jukka Ainamo David Barmes George Beagrie	1982
2.	Treatment Index of Jackson	Jackson	1961
3.	Dental Services Index	Beck	1988

TO ASSESS BONE

1.	Gingival Bone Count Index	Dunning.J.M Leach.L.B	1960
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INDICES USED FOR MALOCCLUSION

1.	Handicapping Labio-Lingual Deviations Index	H.L.Draker	1960
2.	Index of Orthodontic Treatment Needs	P.H.Brook W.C.Shaw	1989
3.	Dental Aesthetic Index	N.C.Cons J.Jenny F.I.Kohaut	1986
4.	Handicapping Malocclusion Assessment Record	American assn. of Orthodontics	1968
5.	Irregularity Index	R.M.Little	1975
6.	Treatment Priority Index	R.M.Grainer	1967
7.	Peer Assessment Rating index	S.Richmond W.C.Shaw K.D.O'Brien	1992
8.	The Occlusal Index	Summer's	1971

Various researches conducted in the field of dentistry that are related to indices are:

1.	Nyvad Caries Diagnostic Criteria	Nyvad	1999
2.	Significant Caries Index (SiC)	Bratthall	2000
3.	Index of Complexity, outcome and need (ICON)	Richmond Daniels	2000
4.	International Caries Detection and Assessment System(I and II)		2001
5.	Specific Caries Index	Acharya S	2006
6.	Genetic Susceptibility Index for Periodontal Disease	Moustakis et al	2007
7.	Basic erosive wear examination (BEWE) (For tooth wear)	Bartlett Ganss Lussi	2007
8.	Oral Health Quality of Life (OHRQoL)	Locker Allen	2007

9.	Bleeding on Interdental Brushing Index (BOIB)	Hofer et al.	2010
10.	Caries assessment spectrum and treatment (CAST) Index	J.E. Frencken Rodrigo G. De Amorim Jorge Faber Sorayac Leal	2011
11.	Pulp ulcer fistula abscess	Jindal m Khan s	2012
12.	FDI World Dental Federation Caries Matrix	FDI Science Committee	2012
13.	Gingival pigmentation to assess the treatment needs for the patient.	Peeran SW, Ramalingam K, Peeran SA, Altaher OB, Alsaïd FM, Mugrabi MH	2014

CONCLUSION

Indices are the essential tool for conducting research projects, diagnosis, making treatment plans and evaluation of prognosis and treatment outcome. It is really difficult to find all related indices at one place, so in this current article we have tried to compile the different indices regularly used in dentistry for research and daily clinical evaluation of various oral disease & conditions. Here, through this article we have aimed at helping the researchers and dental academicians in their future research projects and clinical practice.

CONFLICT OF INTEREST

No potential conflict of interest relevant to this article was reported.

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