

A Working Classification Proposed for Indices Based on Dental Specialties in Dental Research

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Abstract

In dentistry, indices are values that are assigned to quantify the incidence, prevalence, and severity of disease. This paper calls attention to a working classification proposed for indices based on its relationship with nine dental specialties with literature search of indices used in dental research in the PubMed database.

Keywords: Dental research, dental specialties, indices, proposed, working classification

INTRODUCTION

Indices are epidemiological tools used to study the incidence, prevalence, and severity of dental diseases.^[1] There is no working classification for indices based on its relationship with other dental specialties in the literature. This short communication calls attention to a working classification for common indices based on nine dental specialties, namely oral pathology and microbiology, oral medicine and radiology, oral and maxillofacial surgery, orthodontics, prosthodontics, pedodontics, conservative dentistry and endodontics, periodontics, and community dentistry with applications used in dental research [Table 1]. The literature search of indices used in dental research is done in the PubMed database.

ORAL PATHOLOGY AND MICROBIOLOGY

The indices used in oral pathology and microbiology specialty include prognostic indices in oral epithelial dysplasia and squamous cell carcinoma and indices for enamel defects of tooth. The apoptotic and proliferative indices are prognostic indices which are helpful to detect surgical intervention of potentially malignant and malignant squamous cell lesions of the oral cavity.^[2] Mitotic index is a prognostic index in oral epithelial dysplasia and squamous cell carcinoma showing an increased stem cell turnover.^[3] The indices for enamel defects of tooth include index for developmental defects of enamel, developmental defects of enamel index, and modified developmental defects of dental enamel index. The indices

for enamel defects of tooth are calibrated among preschool children in different populations across the globe.^[4,5]

ORAL MEDICINE AND RADIOLOGY

The indices used in oral medicine and radiology specialty include indices for bone mineral density and bone quality evaluation. The panoramic mandibular index is useful for bone quality evaluation.^[6] Panoramic mandibular index, mandibular cortical index, and mental index are used to assess osteoporosis in premenopausal and postmenopausal, periodontally healthy, and chronic periodontitis women.^[7] Antegonial index, mental index, panoramic mandibular index, and mandibular cortical index values are found to be smaller among male patients with osteoporosis than normal males.^[8]

ORAL AND MAXILLOFACIAL SURGERY

The indices used in oral and maxillofacial surgery specialty include indices for orthognathic surgery. Index of orthognathic functional treatment need is used to study the eligibility for orthognathic surgery, and digital models are best alternative to plaster casts for determining the treatment need.^[9,10] Peer

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Access this article online

Quick Response Code:



Website:
<http://www.mmjonline.org>

DOI:
10.4103/MJ.MJ_26_18

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How to cite this article: Shamim T. A working classification proposed for indices based on dental specialties in dental research. *Mustansiriyah Med J* 2018;17:100-3.

Table 1: A working classification proposed for indices based on dental specialties in dental research

Indices in dental specialties	Applications
Oral pathology and microbiology	
Apoptotic index	Surgical intervention in potentially malignant lesions
Proliferative index	Surgical intervention in potentially malignant lesions
Mitotic index	Oral cancer and epithelial dysplasia
Index for developmental defects of enamel	Enamel defects of tooth among preschool children
Developmental defects of enamel index	Enamel defects of tooth among preschool children
Modified developmental defects of dental enamel index	Enamel defects of tooth among preschool children
Oral medicine and radiology	
Panoramic mandibular index	Bone mineral density and bone quality evaluation
Mandibular cortical index	Bone mineral density
Antegonial index	Bone mineral density
Mental index	Bone mineral density
Oral and maxillofacial surgery	
Index of orthognathic functional treatment need	Orthognathic surgery
Peer assessment rating index	Orthognathic surgery
Orthodontics	
Mandibular canine index	Sexual dimorphism
Mandibular first molar index	Sexual dimorphism
Cephalic index	Race identification
The index of orthodontic treatment need	Orthodontic treatment
Salzmann index	Orthodontic treatment
Prosthodontics	
Prosthodontic diagnostic index	Prosthodontic treatment
Berry's index	Teeth selection for prosthodontic treatment and bite-mark analysis
Pedodontics	
Decayed-extracted-filled primary teeth index	Dental caries
Dental caries severity index for primary teeth	Dental caries
Pulpal involvement- roots sepsis index	Dental caries
CAST	Dental caries
Conservative dentistry and endodontics	
PUFA index	Untreated dental caries condition
Periodontics and community dentistry	
Oral hygiene index	Oral hygiene
Simplified oral hygiene index	Oral hygiene
Patient hygiene performance index	Oral hygiene
Plaque index	Dental plaque
Calculus surface index	Dental calculus
Calculus surface severity index	Dental calculus
Marginal line calculus index	Dental calculus
Calculus index simplified	Dental calculus
Debris index	Dental debris
Gingival index	Gingivitis
Papillary marginal attachment index	Gingivitis
Sulcus bleeding index	Gingivitis
Gingival periodontal index	Gingivitis and periodontitis
Gingival-bone count index	Gingivitis and periodontitis
Periodontal index	Periodontitis
Periodontal disease index	Periodontitis
Decayed-missing-filled index	Dental caries
Decayed-missing-filled teeth index	Dental caries
Modified decayed-missing-filled teeth index	Dental caries
Decayed-missing-filled surface index	Dental caries
Decayed-missing-filled surface percentage index	Dental caries
Caries severity index	Dental caries

Contd...

Table 1: Contd...

Indices in dental specialties	Applications
Caries susceptibility index	Dental caries
Czechoslovakian caries index	Dental caries
Oral health status index	Oral health
Dental health index	Dental health
Dean's fluorosis index	Dental fluorosis
Tooth surface index of fluorosis	Dental fluorosis
Fluoride mottling index	Dental fluorosis
Community periodontal index of treatment needs	Periodontal treatment
CAST: Caries assessment spectrum and treatment	

Assessment Rating is superior to the American Board of Orthodontics Objective Grading System in assessing the orthognathic surgery treatment outcome.^[11]

ORTHODONTICS

The indices used in orthodontics specialty include indices for sexual dimorphism, race identification, and orthodontic treatment. Sexual dimorphism is calibrated from the mandibular canine index and mandibular first molar index; race identification from the cephalic index.^[12] The index of orthodontic treatment needs to measure the necessity for orthodontic treatment needs in various populations.^[13,14] Salzmann index is also used to assess orthodontic treatment priority.^[15]

PROSTHODONTICS

The indices used in prosthodontics specialty include indices for prosthodontics treatment, teeth selection for prosthodontic treatment, and bite-mark analysis. The prosthodontic diagnostic index is to assess prosthodontics treatment and is done to classify partially edentulous patients and completely dentate patients in a dental school.^[16] Berry's index is usually used for teeth selection for prosthodontic treatment, and now it is used widely in bite analysis by providing the facial proportions of an individual from the width of the central incisors.^[17,18]

PEDODONTICS

The indices used in pedodontics specialty include indices for dental caries. Decayed-extracted-filled primary teeth index, dental caries severity index for primary teeth and pulpal involvement-roots-sepsis index, and caries assessment spectrum and treatment index are common indices used in the pediatric population.^[19,20]

CONSERVATIVE DENTISTRY AND ENDODONTICS

Conservative dentistry and endodontics specialty use the PUFA index which records the severely decayed teeth with visible pulpal involvement (P/p), ulceration caused by dislocated tooth fragments (U/u), fistula (F/f), and abscess (A/a).^[21] More recently, a cross-sectional study was

done to correlate PUFA index and oral health-related quality of life of a rural population in India.^[22]

PERIODONTICS AND COMMUNITY DENTISTRY

The indices used in periodontics and community dentistry specialties include indices for oral hygiene, oral health, dental health, dental plaque, dental calculus, dental debris, dental caries, dental fluorosis, gingivitis, periodontitis, and periodontal treatment. A detailed description of indices related to periodontics and community dentistry is already available in standard textbooks, and it is not detailed in this paper.

CONCLUSION

This paper gives an insight to aspiring dental researchers about various indices used in dental research so that active collaboration between different dental specialties will be possible for quantifiable research globally.

Financial support and sponsorship

Nil.

Conflicts of interest

There are no conflicts of interest.

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