

This Week's Citation Classic

Russell A L. A system of classification and scoring for prevalence surveys of periodontal disease. *J. Dental Res.* 35:350-9, 1956.
[National Inst. Dental Res., National Institutes of Health, Bethesda, MD]

A scoring method is proposed for the study of chronic destructive periodontal disease in human populations. Individual scores are increased as the disease progresses through a syndrome ending with loss of function of the dentition. Few instruments or adjuncts are required. Emphasis is on examiner comparability. [The SC¹® indicates that this paper has been cited over 235 times since 1961.]

A.L. Russell
1720 Palomar Drive
Ann Arbor, MI 48103

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"The classic epidemiological approach to a disease of unknown etiology involves the division of a population into groups with and without the disease so that the determining factors in their ways of life can be identified. But, some degree of chronic destructive periodontal disease affects virtually every adult. Hence, it was necessary to develop a strategy of separating groups with the greater from groups with the lesser degree of involvement before the disease could be studied epidemiologically. The Periodontal Index was devised for this purpose. It was developed over a period of ten years prior to publication

"During its gestation it was trimmed from a 30-minute procedure requiring an extensive armamentarium to a one-minute inspection conducted mostly with a dental mirror. This was done through elimination of items which proved to be extraneous, or were irreversible, and by elimination or deemphasis of items on which examiners found it difficult to agree.

"There were difficulties with statistical management. Distribution of Index values is

a function of the ages of the persons studied. At younger ages right skewness is severe, evolving into a roughly square pattern in the middle ages, and finally into extreme left skewness in persons over the age of 40 or 50 years. No one transformation seemed appropriate over the entire range. Average scores for small groups were normally distributed, and some of my later findings were reported on this basis. Weighting of scores was manipulated experimentally to reflect the gravity of the condition as judged by clinical periodontologists, and to yield straightline curves with age for some scores of thousands of persons aged up through 84 years. This last permitted comparison of the status of two or more groups differing in mean age.

"The Index has since been recommended for epidemiological research by the World Health Organization and other evaluatory bodies.

"In 1956 there were as many concepts of the etiology of chronic destructive periodontal disease as there were professors of periodontics. Since that time the consensus has developed that the disease is due basically to bacterial activity as modified by host defensive factors. This is consistent with my findings in a series of nutrition surveys in world areas where dental care was virtually nonexistent and oral hygiene practices were ineffective¹ — in short, where there was little interference with the natural progression of the disease. My data, since corroborated,² showed no consistent association with diet, or nutrition, or ethnicity, or a host of other factors once considered etiologic. The factors that emerged invariably as important were chronological age and evidence of past or present oral infection."

1. **Russell A L.** World epidemiology and oral health. *Environmental variables in oral disease.* (Kreshover S J & McClure F J, eds.) Washington. DC: American Association for the Advancement of Science. 1966. p. 21-39.
2. **Ramfjord S P, Emslie R D, Greene J C, Held A J & Waerhaug J.** Epidemiological studies of periodontal diseases. *Amer. J. Pub. Health* 58:1713-22. 1968.