

Guest Editorial: Halitosis—The Need for Further Research and Education

Several months ago, at the 69th IADR General Session in Acapulco, I was fortunate to chair an IADR Symposium entitled “Directions in Halitosis Research” (sponsored by the Periodontal Research Group and the newly-formed Diagnostic Systems Group). The observation that this Symposium was the first ever to concentrate on the subject of oral malodor is just one of many indications that halitosis is largely ignored as a research field. This is in stark contrast to the considerable public interest in this common human condition. The purpose of this editorial is to explore this paradox, with the hope of persuading colleagues that bad breath is a “research frontier” worthy of further investigation and education.

The symposium in Acapulco identified several basic questions about bad breath that remain largely unresolved. How should oral malodor be measured in the laboratory and the clinic? Why are people generally unaware of their own bad breath, yet have no problem identifying it in others? How can the contributions to malodor emanating from various intra-oral loci be distinguished and compared? Does bad breath vary from culture to culture? Is it affected by climate? Can halitosis be used as a diagnostic test for periodontal diseases or poor oral hygiene? Are volatile sulphur molecules the sole components responsible for oral malodor, or do other odorants contribute? Certainly, bad breath research does not suffer from a lack of problems to be tackled. So why has there been so little interest?

One problem is the dissemination—to students, dental professionals, and the general public—of current knowledge regarding bad breath. Many practicing dentists still subscribe to the common misconception that bad breath usually comes from the stomach. This is despite published studies demonstrating that oral malodor usually derives from the mouth itself and is reduced following oral hygiene (Spouge, 1964; Tonzetich, 1977). Most dental school curricula and texts ignore the subject of oral malodor altogether, or provide only cursory information. Thus, graduates find it difficult to address their own patients’ concerns. Instead of helping patients associate bad breath and microbial putrefaction within the mouth, thus motivating improvements in oral hygiene, many dentists tend to skirt the problem altogether. Finally, very few practitioners attempt to identify the oral/non-oral etiology of their patients’ complaints, even though a simple test was proposed over 60 years ago (*i.e.*, a comparison of the odor emanating from the mouth with that from the nostrils [Prinz, 1930]).

One major obstacle to oral malodor research has been scientific measurement. The classic technique for assessment of bad breath involves a cumbersome panel of odor judges. However, several quantitative approaches are currently available for measurement of parameters shown to be associated with oral malodor (usually the level of volatile sulphur components). Thus, it is now possible for investigators to choose between gas chromatography techniques, that distinguish part-per-billion concentrations of individual components (Tonzetich, 1977), and less sophisticated but easy-to-use portable monitors, which are amenable to chairside and field measurements (*e.g.*, Rosenberg *et al.*, 1991a,b).

The development of quantitative means of assessment of bad breath has led to the establishment of research clinics for diagnosis and treatment of oral malodor. At present, there are at least three such clinics in operation (at the Monell Chemical Senses Center in Philadelphia, the Faculty of Dentistry at the University of Toronto, and the Maurice and Gabriela Goldschleger School of Dental Medicine at Tel-Aviv University). These clinics serve several important functions. First, they answer a need for the many people who have desperately sought counsel on this problem. In several cases, patients have flown thousands of kilometers to be tested and

advised. Second, publication of the clinical findings will, it is hoped, provide crucial research momentum. Third, these clinics play an important role in professional education. The clinic at Tel-Aviv University, now in its third year, receives referrals from all over Israel, and our students are given the opportunity to see it in operation. It is clear that the establishment of additional oral malodor clinics at dental schools and research institutes is warranted. Initially, many of the diagnoses and treatment regimens will necessarily involve trial-and-error approaches. However, the expertise gained and shared in the various clinics will subsequently lead to improved protocols, assessment techniques, and treatments, and is bound to provide insight for future research.

As with any research field, the problem of funding cannot be ignored. There has been a perceived notion that oral health care corporations have been ready to support only academic bad-breath research in order to test their own wares (*e.g.*, Pitts *et al.*, 1983). Indeed, many of the papers in the literature deal with the malodor-reducing efficacy of mouthwashes and other commercial products. However, a readiness to fund basic projects may currently exist. Among four major oral health care companies asked to support the symposium in Acapulco, three (Procter & Gamble, Unilever Dental Research, and Colgate-Palmolive) agreed. Another company (Oral-B) is currently helping underwrite basic research at the oral malodor clinic at the University of Toronto. It is hoped that further collaboration between university and industry researchers may lead to an increased openness in this area.

Bad breath usually originates within the oral cavity (Tonzetich, 1977) and is thus of direct pertinence to dental researchers and practitioners. It may be of prime diagnostic importance in the identification of poor oral hygiene, periodontal diseases, nasal problems, and various systemic illnesses (Spouge, 1964). Bad breath is a cause of concern, embarrassment, and frustration on the part of the general public. Oral malodor, whether real or perceived, can lead to social isolation, divorce proceedings, and even contemplation of suicide. The dental research community should be doing more to advance and disseminate our knowledge in this area. Halitosis is one of the remaining frontiers in dental research and needs to be further explored and charted.

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