

Anthropology meets Dentistry in Central America: Research and education in oral biology

La antropología se une a la odontología en América Central: Investigación y educación en biología oral

 Cinzia Fornai^{1,2,3,4*}

1) Department of Research in Occlusion Medicine, Vienna School of Interdisciplinary Dentistry - VieSID, Klosterneuburg, Austria. **2)** Department of Evolutionary Anthropology & Human Evolution and Archaeological Sciences (HEAS), University of Vienna, Vienna, Austria. **3)** Center for Clinical Research, University Clinic of Dentistry Vienna, Medical University of Vienna, Vienna, Austria. **4)** Institute of Evolutionary Medicine, University of Zurich, Zurich, Switzerland.

Oral health is profoundly influenced by socioeconomic factors and the most vulnerable groups are usually those affected by the poorest oral health conditions. Discrepancies in oral health observable both between countries with different welfare and within different social groups of the same country are paralleled also by inequalities in the health-care system. Because of the complexity of the stomatognathic system and the number of etiological factors at play in the development and maintenance of its ailments, a progress in oral health care can be obtained only through combined efforts of different institutions and stakeholders, aimed at activating virtuous mechanisms for the improvement of oral health. Before possible solutions can be taken into account, a clear understanding of the epidemiological profile of a certain human group should be reached. For this reason, two main preliminary steps need to be undertaken. First, an epidemiological assessment should be conducted to clearly understand prevalence, distribution, and effects of certain (oral) pathologies and physiological adaptations, such as wear and bruxism. Second, the influence of different potential etiological agents should be carefully explored. Targeted efforts for the effective resolution of problems can be possible only once this background knowledge is established. A high number of genetic, epigenetic, environmental and cultural variables contribute to a specific population pathophysiological profile, reflecting their biology and population history. The phenotypic presentation of the stomatognathic system, including its physical appearance (i.e., morphology) and its physiological profile in combination with socioeconomic and cultural factors concur in the determination of its functions and dysfunctions. Thus, it is my belief that a collaboration between anthropologists and dental clinicians should be most effective in exploring the complex set of phenomena contributing to oral pathogenesis.

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*Correspondencia a: Vienna School
of Interdisciplinary Dentistry VieSID,
Wasserzeile 35, 3400, Klosterneuburg,
Austria; c.fornai@viesid.com

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A transcontinental effort for interdisciplinary work exploring oral health in the Central American groups most affected by oral ailments (including indigenous populations but also student cohorts), motivated the organization of a Wenner-Grenn-founded workshop entitled “Anthropology meets Dentistry in Central America: Education and Research in Oral Biology” or “The AnthropologyCA workshop” (<https://wennergren.org/grantee/cinzia-fornai/>). This workshop represented a joint effort of the Vienna School of Interdisciplinary Dentistry (VieSID), and the Faculty of Dentistry, University of Costa Rica and took place in March 2023, 6th to 8th, to discuss possible undertakings intended to explore research and educational topics of interest for the advancement of oral health in Central America. Thirty-two expert anthropologists and clinicians from the Americas and Europe, and representatives of the Central American Higher Education Council (*Consejo Superior Universitario Centroamericano*, CSUCA) met with the aim to identify the most pressing issues representing clinical challenges in Costa Rica as in other Central American countries and discuss possible research projects and educational endeavours specifically designed to address them.

The population history, morphological variation of the face, dental wear, and malocclusion in Central American contemporaneous and ancient individuals were discussed as a preliminary step for understanding the conditions of oral health in the region together with the current methods used for the analysis of dental wear and assessment of the function of the stomatognathic system. Reports on the oral health in indigenous populations followed, illustrating also dedicated dental care programs of the Costa Rican Health System. The clinical perspective and the Costa Rican/Central American foci of interest in the advancement of oral health were presented with emphasis on the oral conditions affecting the general population and particularly disadvantaged groups. Healthcare missions for the Lenca communities of Honduras were reported to demonstrate the precarious conditions of this indigenous population and the logistic difficulties in providing them even with the basic oral health assistance. Clinical methods for the assessment of caries and general oral health were illustrated and the status of anthropology and forensic anthropology as disciplines was discussed. Importantly, local regulations for patients’ data access, ethical approval, and permission to do research were clearly laid out. Eventually, the particular needs in research and education as felt by the Central American representatives of the present educational, anthropological, and oral health institutions had become clear. Thus, common goals were identified, and specific projects were discussed in detail for building research teams, addressing ethical concerns, and seeking for potential sources of financial support.

Some of the topics discussed during the AnthropologyCA workshop were further elaborated on and compiled to give form to the current Dossier of the *Revista Argentina de Antropología Biológica* which aims to draw attention to the compelling issue of how to study the oral health conditions in individuals from Central America by combining anthropological and dentistry approaches. The various contributions are meant to stimulate interdisciplinary research showing, for example, the ample common areas of interest and shared methodologies between anthropologists and dentists (Why anthropologists and dentists should work in synergy to improve oral health (in Latin America), by Cinzia Fornai) highlighting also relevant ethical aspects. Different perspectives in the interpretation of the same physiological phenomenon such as dental wear were reported from the points of view of a biological anthropologist (Occlusal wear in humans: Anthropological perspective, by Andrea Cucina) and of clinicians (Bruxism as a cause of tooth wear. A demanding physiological activity on the modern human stomatognathic system, by

Miguel Assis and Alejandra Londoño). The latter two contributions provide a clear example of how the combined work of professionals from the two disciplines may help in advancing the field of oral health by building basic, supporting knowledge. Furthermore, the contributions to this Dossier showed the relevance of fundamental research for the understanding of Central American populations' genetic makeup (The importance of anthropological genetic research in Honduras, Central America, by Norberto F. Baldi and Edwin. F. Herrera-Paz) to unravel the evolutionary origin of some oral pathologies. Similarly, the claim on the bearing of population history (Craniofacial morphological diversity of North, Central, and South America: Implications for discussions about oral biology and health, by Mark Hubbe) for the appreciation of craniomandibular phenotypic variation, illustrates the prominence of incorporating biological anthropology perspectives when considering this matter.

It is paramount to direct interdisciplinary effort to research and education for the advancement of oral health care in Central America as in other Latin American regions. Thus, I am in debt to several institutions and persons for the participation and the support in my endeavour to set in motion initiatives contributing to this important goal. For financial support, I thank the Wenner-Gren Foundation (Workshop Grant, Gr. CONF-901) and the VieSID, specifically in the person of Christian Slavicek. Gracefully, the Faculty of Dentistry, University of Costa Rica and its Dean David Lafuente Marín hosted the event. All participants in the workshop provided tremendous insights by sharing their knowledge and experience. I am particularly grateful to the workshop partakers that accepted the invitation to contribute to this Dossier, which shaped so nicely because of the significant work of the editors, the invited editors and the reviewers. My hope is that this Dossier will inspire current and future generations of biologists and clinicians to work together for the advancement of oral health, in Central America and elsewhere.