Health, oral health and poverty

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Editor's note: The Council of Science Editors has organized among science journals throughout the world a global theme issue on poverty and human development. Participating journals are simultaneously publishing articles on this topic of worldwide concern to raise awareness, provoke interest and stimulate research. This is an international collaboration among journals from developed and developing countries—more than 230 in all. The Journal of the American Dental Association is pleased to be among them and presents an editorial and four cover stories on this topic of interest to practitioners in the United States and around the world.

"Poverty is the worst form of violence."
—Mahatma Gandhi

Poverty has been defined in many ways. The World Bank measures global poverty by quantifying countries' purchasing powers according to purchasing power parities (PPPs), which take into account differences in the relative prices of goods and services and provide an overall measure of the real value of output produced by an economy. The World Bank generally uses the conversion of the international poverty line, which is equivalent to U.S. $1 per day, into the national currency units of respective countries by using PPPs and determining the number of people who are below that threshold.[1]

There is, however, no single universal standard definition of poverty. Modern definitions of poverty have moved away from conceptions based on a lack of physical necessities toward a more social and relative understanding. According to the European Union:

> Income poverty is only one part of the overall concept of poverty—or deprivation as it is also called. Poverty can be defined as a condition in which a person is deprived of the essentials for a minimum standard of well-being and life. Therefore, poverty does not only refer to material resources, such as money, food or housing, but also to social resources, such as access to education and healthcare or meaningful relations with other people.[2]

MAGNITUDE AND PREVALENCE OF WORLD POVERTY

The World Health Organization (WHO) has placed foremost emphasis on the crisis of poverty: "More than one thousand million of the world's people have been excluded from the benefits of economic development and the advances in human health that have taken place during the 20th century."[3] According to WHO, about 1.3 million people live in absolute poverty with an income of less than U.S. $1 per day; to make matters worse, this level is rising. Moreover, people living in absolute poverty are five times more likely to die before reaching the age of 5 years and 2.5 times more likely to die between the ages of 15 and 59 years than are people in higher-income groups. Disease is both a cause and a consequence of poverty and can reduce house-

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hold saving, learning ability, productivity and quality of life—thus creating or perpetuating poverty. The poor, in turn, are more at risk of experiencing illness and disability. Improved health translates into greater, more equally distributed wealth and productivity.[3]

THE ASSOCIATION BETWEEN HEALTH PROMOTION AND POVERTY REDUCTION

The 20th century's major milestone in efforts toward attaining "health for all" was the WHO's Declaration of Alma-Ata.[4] Written at the 1978 International Conference on Primary Health Care, this declaration clearly stated that "the existing gross inequality in the health status of the people particularly between developed and developing countries as well as within countries is politically, socially and economically unacceptable and is, therefore, of common concern to all countries."

Despite the acknowledged prevalence and magnitude of health inequities within and between countries, too little research has been conducted on the social determinants of ill health, and studies overwhelmingly have focused on biomedical research at the level of individuals. Factors such as socioeconomic class, race and sex are not commonly reflected in medical journals, which leads to biases in both the content and the process of research.[5]

Prevention and treatment of most oral diseases are expensive and, therefore, often beyond the means of the poor, who thus are at a significantly higher risk of developing systemic diseases related to oral pathologies.

The 10 statistical highlights in global public health that have been emphasized by the WHO include the following three poverty-related examples[6]:

- Child nutrition: In 2005, the global estimate of the prevalence of "wasting" (two standard deviations below the median weight-for-height measure) was 55 million children younger than 5 years. Of these, 29 million lived in south central Asia. An even more dismal pattern was found for "severe wasting" (three standard deviations below the median), with an estimated 19 million children affected. The prevalence of wasting and severe wasting appears to be increasing, and many of the affected children will die before reaching the age of 5 years.
- Health expenditure: In 2004, 90 percent of the world's health care resources was spent by 20 percent of the world's population. Africa and southeast Asia (37 percent of the world's population) account for the largest burden of disease but spend only about 2 percent of global resources on health care.
- Tobacco use and poverty: By the year 2030, more than 80 percent of the 8.3 million deaths attributed to tobacco will occur in low-income countries. In the 2003-2004 period, daily smoking was more prevalent among the lowest-income households in developing economies. The difference in prevalence between the poor and the least poor was greatest among the southeast Asian countries, where average poverty was the highest.

ORAL DISEASE AND SYSTEMIC DISEASE

Oral diseases often are substantially associated with systemic morbidity, which unfortunately plagues the most vulnerable poorer population subgroups. Recent studies and reviews have shown a statistical association between periodontal disease and pre-eclampsia, pregnancy outcomes, cardiovascular disease, stroke, pulmonary disease and diabetes.[7-10] Concurrently, periodontal therapy has been shown to reduce the rate of preterm low birth weight among pregnant women.[10,11]

Malnutrition, specifically insufficient vitamin supply, has been shown to induce oral disease.[12,13] At the same time, dental disease has been implicated as contributing to malnutrition, which is particularly evident among lower social class communities and in developing countries.[14,15] The relationship between tooth decay, tooth loss and malnutrition is of great relevance, and great concern, among elderly people, owing to edentulism, and young children, owing to early childhood caries.[15-17]

Despite the fact that since the antibiotic era most oral diseases are not commonly life-threatening, reports of oral disease–related deaths should not be underestimated. Poor oral health has been documented as a risk factor for mortality and early death.[18-20] It is self-evident

ABBREVIATION KEY. DMFT: Decayed, missing, filled teeth. **HDI:** Human Development Index. **PPPs:** Purchasing power parities. **WHO:** World Health Organization.