June 19, 2014 <minato-nakazawa@umin.net>

Medical Anthropology (10) **"Medical-Ecological Approaches to Health"**

based on Chapter 7 (pp.249-293), In: Winkelman M "Culture and Health: Applying Medical Anthropology", Jossey-Bass, 2009.

MEDICAL ECOLOGY AND DISEASE

Health is affected by many interactions with the environment. Medical ecology examines the relationships of health to physical, biological, and social environments such as climatic conditions, plants and animals, and population dynamics.
Medical-ecological approaches examine population health and disease as reflecting the group's biological, individual and cultural adaptations. Ecological systems are conceptualized as having three major aspects: abiotic (physical), biotic (biological) and cultural: interacting with each other (e.g., Tropical rainforest environment support malaria-carrying mosquitoes, whose opportunities to infect humans are increased by artificial lakes and crowded population.)
Medical ecology focuses on the health effects of abiotic and biotic environments and is the closest of the medical anthropology approaches to the perspectives of biomedicine.
Medical ecology uses evolutionary perspectives to examine the relationship of human' evolved genetic potentials to their health conditions (e.g., thrifty genotype, sickle cell anemia gene's overdominance in African malaria-endemic area)
Different disease profiles associated with various ethnic groups are produced in a chain of causal and contributory linkages involving the interactions of agents with many factors: physiological and genetic characteristics, including susceptibilities and resistances to disease; nutritional input and other protective resources; stress and resistance resources, including immunological status; social networks and support for combating disease; health beliefs and practices that affect health behaviors and the incidence and course of maladies.
Medical-ecological approaches investigate many environmental factors affecting health: human behaviors directly related to adaptation and survival; reproduction and birthing practices; population dynamics; diet, nutrition and foodways; functional brain organization and evolutionary psychology; pcyhobiological effects of stress.

EVOLUTIONARY ADAPTATIONS AND HEALTH

Adaptations as the result of natural selection alter the genotype. Evolutionary adaptations affect health in diversified areas including diet, obesity, stress, reproduction, menstruation, pre-menstrual syndrome, breast-feeding, sleep, addictions, back and spinal conditions, CVD and mental illness.
Many environmental features affect disease: physical and chemical (climate, environmental and workplace contaminants), biological (other animals, food sources, habitats, reservoirs), familial (housing, hygiene, age distribution, cultural and behavioral characteristics), occupational (work conditions, stresses), socio-economic (nutrition, sanitation, health resources), social environment (public health, day care and medical facilities), psychosocial, intergroup interactions (migration, travel).

GENETIC, INDIVIDUAL, AND CULTURAL ADAPTATIONS TO THE ENVIRONMENT

Gene-culture coevolution
Natural selection and adaptation in disease and health
Nutrition in an evolutionary and cultural perspective: Nutritional anthropology (Johnston 1987, Ulijaszek and Strickland 1993, ...),
Thrifty genotype and its relation to obesity (Pima Indian in Arizona, Tonga, Samoa, and Nauru's high prevalence of diabetes)
Individual physiological adaptations: Thrifty phenotype (Barker's hypothesis about the high risk of cardiovascular disease among the people with low birth weight due to poor nutritional environment as fetus, related with epigenetics)
Acclimation (rapid, short term adjustment), Acclimatization (pervasive but reversible response to exposure over a longer time), Developmental (native) acclimatization (Irreversible adjustment to environmental stressors)
Cultural adaptations and health: postpartum sexual taboos affected breast-feeding and birth-spacing in Papua New Guinea or in Africa may have resulted in the protection of maternal and child health.
Disease in ecological context: three kinds of human disease causation ~ genetic characteristics, unique developmental influences of environment, and culture

EPIDEMIOLOGY OF DISEASE

Measuring disease as rates (incidence), proportions (prevalence), risks
Identifying causes of disease
Cultural systems approaches in epidemiology

RACIAL AND ETHNIC CATEGORIES AND HEALTH

Racial categories as cultural concepts, Population biological differences, Skin coloration as ecological adaptation
Rejecting the race concept => ethnicity (incl. social factor) concept

TRIUNE BRAIN STRUCTURES AND FUNCTIONS
EVOLUTION OF THE SICKNESS-AND-HEALING RESPONSES
EMOTIONS IN BIOCULTURAL PERSPECTIVE

<Debate of next week>

- The hygienic hypothesis on allergic diseases considers the cause of increasing allergic diseases (child asthma, pollen allergy, and so on) as improved hygiene, which decreased the exposure to many kinds of antigens during early childhood, in turn, resulted in less development of immune system and overload of unused immunoglobulin E. If this hypothesis is correct, improvement of hygienic conditions in developing countries as overseas aid is ethically recommendable or not?
  - Prop side: Recommendable
  - Opp side: Unrecommendable