

Chapter 13

Phenomenology, Epigenome and Epigenetic Influence on the Growth and Development of School–Age Children

ABSTRACT

This chapter focused on the impact of phenomenology, epigenome, and epigenetic factors in the growth and development of school-age children. The biological and social determinants of human development were explored. Inevitably, the inherited gene–chromosomes play a significant role in human growth and development. The academic institutions are set up to facilitate the process of nurturing school-age children, not only in their physical growth and development, but also in their social adjustment to enable them to become fully functioning adults. By far most important, we explored the role of epigenetics in human aging process, since numerous existential events as weathering, stress, nutrition inclement weather, and chemical/pesticides in our environment contribute to aging.

Children are the major repository of human capital for the future. The fact that children are the workers, scientists, parents, leaders, and civil society participants of tomorrow, means that their survival, health, nutrition and educational progress are key issues for reconstruction and development today. - Nelson Mandela, 1996.

THE ROLE OF EPIGENOME AND EPIGENETIC INFLUENCES ON THE HUMAN AGING PROCESS

At the outset of this chapter, we defined the epigenome as the mechanism that turns individual genes on and off in a cell (National Institutes of Health, 2014). Before delving into a detailed analysis of the process of epigenome and methylation, we emphasized the universal acceptance of the definition of health by the World Health Organization (WHO). In assessing the continuity of human life cycle, the

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WHO recognized this challenge by defining health “as complete state of physical, mental and social well-being and not merely the absence of disease or infirmity.” The renowned late Ethel Shanas, professor emeriti of gerontology at the University of Illinois at Chicago, Illinois, had instructed her students that when it comes to the elderly, health can be redefined as “the mere ability to participate in social affairs, Ethel Shanas, 1978, personal communication” No sooner did we quiver than she listed all the health problems which those 65 years and older experience or endure on a daily basis. These conditions are due to weathering and the ever-changing epigenome.

Phenomenology

It seems expedient that our discussion of the epigenome should begin from human philosophical perspective described as phenomenology. Phenomenology is the lived experiences of humans. From a philosophical construct, Husserl (2001) and Merleau-Ponty (2012) defined phenomenology as the study of the structure of consciousness as experienced from the first-person point of view. The behavioral pattern in any society must not be devoided from the internalized, cultural essence, and the way of life from human historical weaning practices. Therefore, it is most suitable to describe the discipline of phenomenology as the study of experience, or consciousness. Literally, phenomenology can suitably be described as the study of “phenomena.” In the first half of the twentieth century, the leaders of this philosophical construct included Edmund Husserl, Martin Heidegger, Maurice Merleau-Ponty, and Jean-Paul Sartre et al.

From a philosophical perspective, phenomenology investigates the study of structure of various types of human experiences, ranging from perception, thought, memory, imagination, emotion, desire for what to eat, what to do, whether one should engage in specific behavior and volition to bodily awareness, embodied action, and specific social activity and linguistic behavior. The activities described are components of human cultural essence and our mode of behavior.

In view of this philosophical analysis, human cultural norms associated with prenatal activities and conception, and what to ingest during pregnancy are influenced in numerous traditional settings worldwide by the acquired cultural practices of people worldwide. As discussed in Chapter 7, under traditional healing, over 75% of the human population is usually provided with prenatal care and delivery of childbirth by traditional birth attendants. Routinely, these healers advise the ingestion of pica to enhance the settling of the conceptus (unborn fetus) in the womb.

Consumption of Pica

Pica is the consistent and compulsive ingestion of nonfood substances. This is not necessarily an eating disorder, but what the traditional birth attendants recommended for the pregnant female to enable the unborn baby to settle properly in her womb. The subdivisions of pica include pagophagia– the excessive consumption of ice, freezer frost or iced drinks; amylophagia– consumption of uncooked starch and dough; plasticophagia– the nibbling and sucking of plastics; and geophagia– the consumption of clay, mud, dirt, and other pieces of the lithosphere (Glickman et al., 1981, McLoughlin, 1987).

However, in many West African nations the ingestion of pica is associated with medicinal treatment, spiritual and ceremonial behavior, folk medicine, traditional cultural activities, and social customs. Traditional birth attendants engage in maternal and child’s health practice, by instructing the use of clay mixed with antelope, ground into fine powder, and seasoned with salt to ensure its palatability.

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